

# Stellar Parameters of Main Sequence Turn-off Star Candidates Observed with the LAMOST and *Kepler*

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**Abstract** Main sequence turn-off (MSTO) stars have advantages as indicators of Galactic evolution since their ages could be robustly estimated from atmospheric parameters. Hundreds of thousands of MSTO stars have been selected from the LAMOST Galactic survey to study the evolution of the Galaxy, and it is vital to derive accurate stellar parameters. In this work, we select 150 MSTO star candidates from the MSTO stars sample of Xiang that have asteroseismic parameters and determine accurate stellar parameters for these stars combining the asteroseismic parameters deduced from the *Kepler* photometry and atmospheric parameters deduced from the LAMOST spectra. With this sample, we examine the age determination as well as the contamination rate of the MSTO stars sample. A comparison of age between this work and Xiang shows a mean difference of 0.53 Gyr (7%) and a dispersion of 2.71 Gyr (28%). The results show that 79 of the candidates are MSTO stars, while the others are contaminations from either main sequence or sub-giant stars. The contamination rate for the oldest stars is much higher than that for the younger stars. The main cause for the high contamination rate is found to be the relatively large systematic bias in the LAMOST surface gravity estimates.

**Key words:** stars: fundamental parameters – stars: evolution – stars: asteroseismology

## 1 INTRODUCTION

A star begins its evolution as a hydrogen-rich main-sequence star with a hydrogen-burning core. As core hydrogen burning finishes, hydrogen-shell burning starts and the star expands to larger radius, lower surface temperature and higher luminosity, and the star evolves into the sub-giant branch phase. Main sequence turn-off (MSTO) stars are stars that have reached the point of central hydrogen exhaustion at the end of the main-sequence phase. Given the metallicity, their effective temperatures are very sensitive to their ages, hence one

MSTO stars are widely used to determine ages of star clusters as they are easily identified from the color-magnitude diagrams (CMDs) (e.g. Mackey et al. 2008; Goudfrooij et al. 2009; Yang et al. 2013). Since member stars of a cluster are generally believed to form from the same gas cloud simultaneously, they have the same age. Unlike the MSTO stars in clusters, MSTO stars in the field are not easy to be identified from the CMDs. To identify field MSTO stars, accurate estimates of atmospheric parameters ( $T_{\text{eff}}$ ,  $\log g$  and  $[\text{Fe}/\text{H}]$ ) are required. As the implementation of the LAMOST Experiment for Galactic Understanding and Exploration (LEGUE; Deng et al. 2012; Zhao et al. 2012; Liu et al. 2014) and other spectroscopic surveys such as the Sloan Extension for Galactic Understanding and Exploration (SDSS/SEGUE; Yanny et al. 2009), the Radial Velocity Experiment (RAVE; Steinmetz et al. 2006) and the Apache Point Observatory Galactic Evolution Experiment (APOGEE; Majewski et al. 2010), stellar atmospheric parameters of millions of stars are delivered from the survey spectra. Typical accuracies of the LAMOST stellar atmospheric parameters reach 100 – 150 K for  $T_{\text{eff}}$ , 0.20 – 0.25 dex for  $\log g$  and 0.1 – 0.2 dex for  $[\text{Fe}/\text{H}]$  (Xiang et al. 2015b, Wu et al. 2014, Luo et al. 2015, Gao et al. 2015). Hundreds of thousands of MSTO stars have been selected from the LAMOST survey by Xiang et al. (2015a) based on stellar atmospheric parameters yielded by the LAMOST Stellar Parameter Pipeline at Peking University (LSP3; Xiang et al. 2015b). The ages of these MSTO stars are also estimated, with a claimed uncertainty of about 30 per cent. However, given the low spectral resolving power of LAMOST ( $R \sim 1800$ ; e.g. Cui et al. 2012; Deng et al. 2012), accurate stellar parameters, especially surface gravity, are difficult to yield from the spectra. Therefore, a careful sanity examination on the feasibility of the method to select the MSTO stars sample and on the accuracy of age estimation seems to be essential.

Asteroseismology is a powerful tool to derive accurate stellar parameters (Bi et al. 2008; Gilliland et al. 2010; Yang & Meng 2010; Chaplin et al. 2011; Stello et al. 2013; Tian et al. 2015). By asteroseismology, accurate stellar parameters of thousands of stars have been obtained (Chaplin et al. 2014; Huber et al. 2014). It is found that surface gravities yielded by the asteroseismology can be accurate to 0.01 – 0.03 dex (Hekker et al. 2013; Huber et al. 2014), much better than the spectroscopic estimates. Combining effective temperatures and metallicities from the LAMOST spectra with asteroseismic surface gravity yielded from the *Kepler* photometry, MSTO stars can be well identified and their ages can also be accurately determined.

In this paper, we determine fundamental stellar parameters ( $M$ ,  $R$ , Age,  $L$ ,  $T_{\text{eff}}$ ,  $Z$ ,  $\log g$ ) for 150 MSTO star candidates selected from the MSTO stars sample that have asteroseismic properties delivered from photometry of the *Kepler* mission (Gilliland et al. 2010). Meanwhile, we compare our results with previous studies by Huber et al. (2014) and Xiang et al. (2015a). We discuss the impact of uncertainties in atmospheric parameters on the measurement of ages, and examine the accuracy of the age estimates as well as the contamination rate of the MSTO stars sample. The paper is organized as follows. In Section 2, we introduce how to select the sample of MSTO star candidates. In Section 3, we describe the stellar model and how to obtain the stellar parameters. Results and discussion are presented in Section 4 and a summary

## 2 THE MSTO STAR CANDIDATES

The LAMOST-*Kepler* project (De Cat et al. 2015) aims to observe stars in the *Kepler* field with the LAMOST (Cui et al. 2012) and deliver atmospheric parameters and radial velocities. The LAMOST survey (Zhao et al. 2012) has produced a large number of low resolution ( $R \sim 1800$ ) optical spectra ( $\lambda$  3800 – 9000 Å). By September 2014, all the *Kepler* fields had been observed at least once, and 101 086 spectra had been collected on 38 LAMOST plates (De Cat et al. 2015). Many of the stars have asteroseismic characteristics deduced from the *Kepler* photometry. These stars have been used to examine and calibrate stellar surface gravities yielded from the LAMOST spectra (Ren et al. 2016; Wang et al. 2016).

To study the evolution of the Galaxy, Xiang et al. (2015a) have selected a sample of 0.3 million MSTO stars from the LAMOST survey based on stellar atmospheric parameters ( $T_{\text{eff}}$ ,  $\log g$  and  $[\text{Fe}/\text{H}]$ ) derived by the LSP3. They have estimated stellar ages for those MSTO stars with a isochrone fitting technique utilizing the Yonsei-Yale (YY) isochrones (Demarque et al. 2004), and claim a typical accuracy of 30 per cent.

Among the LAMOST-*Kepler* stars, about 4000 stars are found to have asteroseismic parameters (the frequency of maximum power of the oscillation  $\nu_{\text{max}}$  and large frequency spacing  $\Delta\nu$ ) from literature (Hekker et al. 2011; Appourchaux et al. 2012; Mosser et al. 2012; Stello et al. 2013; Huber et al. 2013; Chaplin et al. 2014), most of which are red giant stars and only about 300 stars are dwarfs/subgiants. A cross-identification with the MSTO stars sample yields 179 common stars, and in this work, we denote them as MSTO star candidates. Asteroseismic parameters collected from literature, as well as atmospheric parameters yielded by the LSP3 for these MSTO star candidates are listed in Table 1.

## 3 GRID MODELING

### 3.1 Models

We use the Yale Rotating Stellar Evolution Code (YREC; Pinsonneault et al. 1990; Pinsonneault et al. 1992; Demarque et al. 2008) to construct stellar evolution models. Input physics include the OPAL equation of state tables (Rogers et al. 2002) and OPAL high-temperature opacities (Iglesias et al. 1996) supplemented with low-temperature opacities of Ferguson et al. (2005). The NACRE nuclear reaction rates (Bahacall et al. 1995) are used. Atomic diffusion due to concentration and thermal gradients is included in the computation of models with initial masses below  $1.1 M_{\odot}$ , using the formulation of Thoul et al. (1994). For grids with initial mass between  $1.1$  and  $1.2 M_{\odot}$ , both models with and without atomic diffusion are calculated. The outer convective zone is treated according to the mixing-length theory (Böhm-Vitense 1958) and the influence of overshooting convection is ignored. To account for the uncertain mixing-length parameter,  $\alpha_{\text{MLT}}$ , three sets of the model grids are calculated, each with an  $\alpha_{\text{MLT}}$  of 1.75, 1.84 and 1.95, respectively; the solar-calibrated value is  $\alpha_{\text{MLT}} = 1.84$ .

We calculate stellar evolution models with  $[\text{Fe}/\text{H}]$  in the range  $-0.3 - 0.4$  dex in steps of 0.1 dex. We assume that  $[\text{Fe}/\text{H}] = 0$  corresponds to the solar abundance ( $(Z/X)_{\odot} = 0.0231$ ) as determined by Grevesse et al. (1998) and that these models have a helium abundance of  $Y = 0.248$ . The helium abundance for models with other values of metallicity is determined assuming a chemical evolution model  $Y_{\text{ini}} = 0.248 +$

is estimated through the formula

$$[\text{Fe}/\text{H}] = \log\left(\frac{Z}{X}\right) - \log\left(\frac{Z}{X}\right)_{\odot}. \quad (1)$$

Our models have masses in the range  $0.8\text{--}2.5 M_{\odot}$ , in steps of  $0.02 M_{\odot}$ . The evolution tracks are constructed from the pre-main sequence to the base of the red-giant branch (RGB). A summary of the adopted input parameters is given in Table 2.

Figure 1 shows the evolutionary tracks in the  $T_{\text{eff}} - \log g$  plane and the position of the 179 MSTO star candidates, with parameters derived with the LSP3. The error bars represent the error of  $T_{\text{eff}}$  and  $\log g$  derived from the LSP3 separately. The figure indicates that most of the MSTO star candidates are located around the main sequence turn-off stage.

### 3.2 Methodology

Usually, stellar parameters of field MSTO stars are determined by comparing theoretical models with atmospheric parameters such as  $T_{\text{eff}}$  and  $[\text{Fe}/\text{H}]$  derived from either photometry or spectroscopy. Low-mass main-sequence stars and some sub-giants show rich spectra of solar-like oscillations, small amplitude pulsations which are excited and damped intrinsically by convection in the outer envelope. The large frequency spacing,  $\Delta\nu$ , is formally related to the mean density of a star (Christensen-Dalsgaard et al. 1993). the frequency of maximum power of the oscillation  $\nu_{\text{max}}$  is related to the acoustic cutoff frequency of a star (e.g. Kjeldsen et al. 1995; Bedding & Kjeldsen 2003; Chaplin et al. 2008). Both  $\Delta\nu$  and  $\nu_{\text{max}}$  are sensitive to the structure of stars, and thus are indicators of evolutionary stage.

Under the constraints of atmospheric parameters ( $T_{\text{eff}}$ ,  $[\text{Fe}/\text{H}]$ ) and seismic properties ( $\Delta\nu$  and  $\nu_{\text{max}}$ ) listed in Table 1, we use the likelihood method of Basu et al. (2010) to find the best-fit models.

Given the observed and model parameters, the likelihood is:

$$L_{T_{\text{eff}}} = \frac{1}{\sqrt{2\pi}\sigma_{T_{\text{eff}}}} \exp\left(-\frac{(T_{\text{eff,obs}} - T_{\text{eff,model}})^2}{2\sigma_{T_{\text{eff}}}^2}\right), \quad (2)$$

$$L_{[\text{Fe}/\text{H}]} = \frac{1}{\sqrt{2\pi}\sigma_{[\text{Fe}/\text{H}]}} \exp\left(-\frac{([\text{Fe}/\text{H}]_{\text{obs}} - [\text{Fe}/\text{H}]_{\text{model}})^2}{2\sigma_{[\text{Fe}/\text{H}]}^2}\right), \quad (3)$$

$$L_{\Delta\nu} = \frac{1}{\sqrt{2\pi}\sigma_{\Delta\nu}} \exp\left(-\frac{(\Delta\nu_{\text{obs}} - \Delta\nu_{\text{model}})^2}{2\sigma_{\Delta\nu}^2}\right), \quad (4)$$

$$L_{\nu_{\text{max}}} = \frac{1}{\sqrt{2\pi}\sigma_{\nu_{\text{max}}}} \exp\left(-\frac{(\nu_{\text{max,obs}} - \nu_{\text{max,model}})^2}{2\sigma_{\nu_{\text{max}}}^2}\right). \quad (5)$$

The combined likelihood is

$$L = L_{\Delta\nu} L_{\nu_{\text{max}}} L_{T_{\text{eff}}} L_{[\text{Fe}/\text{H}]}. \quad (6)$$

Note that we do not consider the likelihood function for  $\log g$  because the LSP3 estimates of this quantity may have large systematic errors. We assume that the normalized probability of each model  $p_i$  is:

$$p_i = \frac{L_i}{\sum_{i=1}^{N_m} L_i}, \quad (7)$$

where  $N_m$  is the total number of models. This normalized probability is a measurement of how well the

the integral probability to estimate the best-fitted parameter and its error. For each parameter, the best-fitted parameter respects to value that have a integral probability of 0.5, and the  $1\sigma$  error is given.

#### 4 RESULTS AND DISCUSSION

Among the 179 MSTO star candidates, stellar parameters for 150 of them are successfully derived, and are listed in Table 3, while the remaining 29 stars are falling outside of our model grids. For the 29 remaining stars, 25 stars are RGB stars according to their asteroseismic characteristics and the other 4 stars are metal-poor stars with  $[\text{Fe}/\text{H}] < -0.3$  dex.

Figure 2 illustrates distributions of the derived mass, age and metallicity for the 150 MSTO star candidates. Their masses are in the range of  $0.8 - 1.5 M_{\odot}$  and peak at about  $1.1 M_{\odot}$ . The ages are widely distributed in the range of  $0 - 13$  Gyr, mostly in  $2 - 8$  Gyr. The metallicities distributed in the range of  $-0.3 - 0.3$  dex, with a moderate peak near the solar value. Besides, the typical uncertainties in  $T_{\text{eff}}$ ,  $\log g$ ,  $[\text{Fe}/\text{H}]$ ,  $M$  and  $R$  are 60 K, 0.009 dex, 0.1 dex,  $0.04 M_{\odot}$  and  $0.03 R_{\odot}$ , respectively. The uncertainty in  $\log g$  is much smaller than that yielded by the LSP3 from the LAMOST spectra. And uncertainties in the stellar age vary from 0.4 Gyr for young stars to 1.3 Gyr for old stars, corresponding to a relative error about  $9 - 10\%$ .

In fact, part of the stellar parameters for those 150 MSTO star candidates are also provided by Huber et al. (2014). Based on the Dartmouth Stellar Evolution Database (DSEP, Dotter et al. 2008), Huber et al. (2014) derived fundamental parameters using the asteroseismic quantities and atmospheric parameters in the *Kepler* input catalog (KIC), which are estimated from photometry for most stars. But they did not provide ages. By comparing the  $\log g$ ,  $M$  and  $R$  derived by Huber et al. (2014) and those of our work, we find that our estimates of  $\log g$  are consistent with those of Huber et al. very well, which yield a mean difference of only 0.0002 dex, and a standard deviation of 0.013 dex. However, there are systematic deviations of  $R$  and  $M$  between our estimates and those of Huber et al. Our values are systematically smaller than those of Huber et al., and the deviations increase with increasing  $R$  and  $M$ . Typical difference of  $R$  is  $0.025 - 0.05 R_{\odot}$  for stars with  $R \sim 2.0 R_{\odot}$ , and typical difference of  $M$  is  $0.1 - 0.2 M_{\odot}$  for stars with  $M \sim 1.5 M_{\odot}$ . Nevertheless, the dispersion of differences of  $R$  and  $M$  are small (after exclude systematic trends), with only  $0.056 R_{\odot}$  in  $R$ , and  $0.1 M_{\odot}$  in  $M$ . The systematic trends of differences in  $R$  and  $M$  are mainly caused by systematic differences in the effective temperatures adopted. In Figure 4, we compare  $T_{\text{eff}}$  derived by the LSP3 and those of Huber et al. The figure exhibits similar trends to those for the mass in Figure 3. As expected, there is strong correlation between the differences of mass and the differences of effective temperatures. Because the  $T_{\text{eff}}$  derived by the LSP3 are calibrated to the recently deduced metallicity-dependent color–temperature relation of Huang et al. (2015), which is deduced based on stellar interferometry data sets, we believe our results of stellar mass are more reliable than those of Huber et al. In addition, the stellar metallicity could also affect the determination of stellar mass, but it has only a minor contribution compared to that from the effective temperature.

After that, in Figure 5, we compare age estimates of this work with those of Xiang et al. (2015a). The left panel shows that though ages for the majority of stars agree well with each other, there are a considerable fraction of stars that our values are systematically much lower than those of Xiang et al. For

7 Gyr according to our results. The right panel plots the distribution of the differences of age estimates. The distribution yields a mean difference of 0.53 Gyr (7 %), and a dispersion of 2.71 Gyr (28 %). It is found that the age discrepancy are mostly caused by systematic bias in the LSP3  $\log g$ . For instance, KIC 5523099, the LSP3 atmospheric parameters (5513 K, 4.24 dex, 0.03 dex) yield an age of 12.5 Gyr, while our atmospheric parameters (5507 K, 3.79 dex, 0.05 dex) yield 4.6 Gyr, which is 6.9 Gyr younger due to a 0.45 dex overestimate of the LSP3  $\log g$ . As the uncertainty of the LSP3  $\log g$  is the main cause of the differences in stellar ages, left panel in Figure 6, we compare  $\log g$  derived by the LSP3 with our values. The figure reveals that  $\log g$  given by the LSP3 has a linear trend of deviation with our estimated values. The result is consistent with that of Ren et al. (2016), who examined the LSP3  $\log g$  with asteroseismic values from Huber et al. (2014). To better characterize the bias in the LSP3  $\log g$ , we display the histogram distribution of  $\log g$  differences in right panel in Figure 6. The figure exhibits that the LSP3  $\log g$  is generally higher than our seismic values by about 0.1 dex, with a calculated standard deviation of 0.16 dex.

We compare the  $T_{\text{eff}} - \log g$  diagram of the LSP3 and our work in Figure 7. The figure indicates that our work yields a sparser distribution, and that a considerable fraction of the stars are located in the sub-giant branch. Based on the definition of the MSTO stars of Xiang et al.(2015a), our revised atmospheric parameters indicate that only 79 of the 150 star candidates are MSTO stars, while the other 71 are contaminations from either main sequence or sub-giant stars. The stellar ages for those 71 contamination stars are marked with red circles in Figure 5. Considering the 29 stars falling outside of our model grids, which 4 metal-poor ones maybe MSTO stars and the other 25 stars are certainly RGB stars, there are 46 % (83/179) stars in total are MSTO stars, while the others are contaminations from either main sequence or sub-giant stars. However, considering that the number of stars in our sample is still small, and that the asteroseismic sample from literature are probably biased to sub-giant stars because they are brighter and also have relatively larger oscillation amplitudes thus easier to be detected, our results have probably overestimated the contamination rate.

## 5 SUMMARY

Combing atmospheric parameters derived with the LSP3 from the LAMOST spectra, and seismic characteristics derived from *Kepler* photometry, we have determined the stellar parameters for 150 MSTO star candidates selected from the MSTO stars sample by constructing stellar evolution models. Typical uncertainties for their parameters are  $0.04 M_{\odot}$ ,  $0.03 L_{\odot}$ ,  $0.03 R_{\odot}$  for  $M$ ,  $L$  and  $R$ , respectively, 0.4 Gyr for young stars and 1.3 Gyr for old stars, as well as 60 K, 0.009 dex, 0.1 dex for  $T_{\text{eff}}$ ,  $\log g$  and  $[\text{Fe}/\text{H}]$ , respectively.

Meanwhile, we compare the derived  $\log g$ , radius and mass with those of Huber et al. (2014), and find that the  $\log g$  and radius are consistent well with each other, while the mass show moderate differences due to different effective temperatures adopted. We also compare our ages estimates with those of Xiang et al. (2015a) and find a mean difference of 0.53 Gyr (7 %) and a dispersion of 2.71 Gyr (28 %). Moreover, we also re-select MSTO stars based on the criteria of Xiang et al. (2015a) utilizing our newly derived atmospheric parameters and find that about half of the MSTO stars identified with the LSP3 atmospheric parameters are actually main sequence or sub-giant stars, and the stellar ages for those contamination stars

stars sample. However, the number of stars in our sample is still small, , and they are probably biased to sub-giant stars, so that our sample may not be representative enough to give a full clarification of contamination rate of the MSTO stars sample. As the LAMOST survey progresses, we plan to obtain larger sample to deduce more conclusive results in the next.

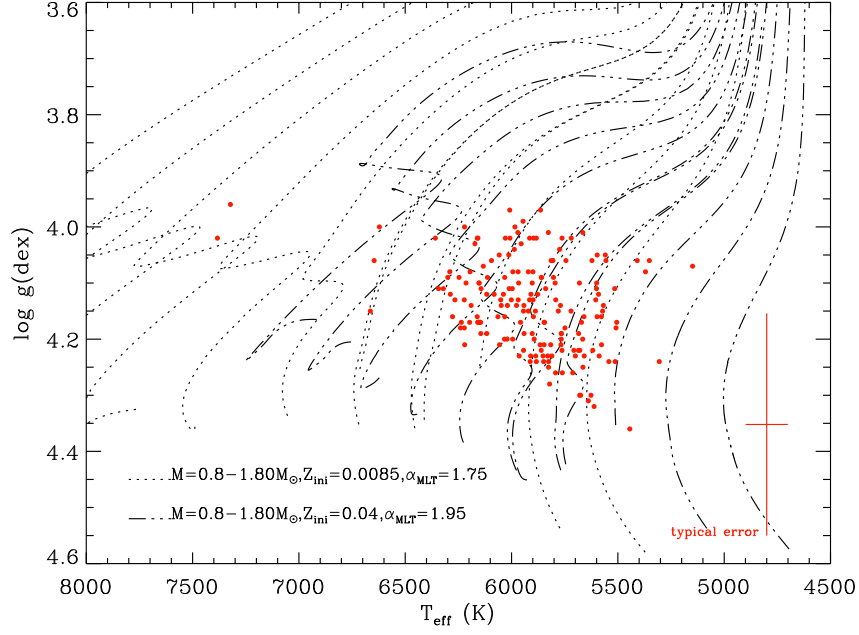
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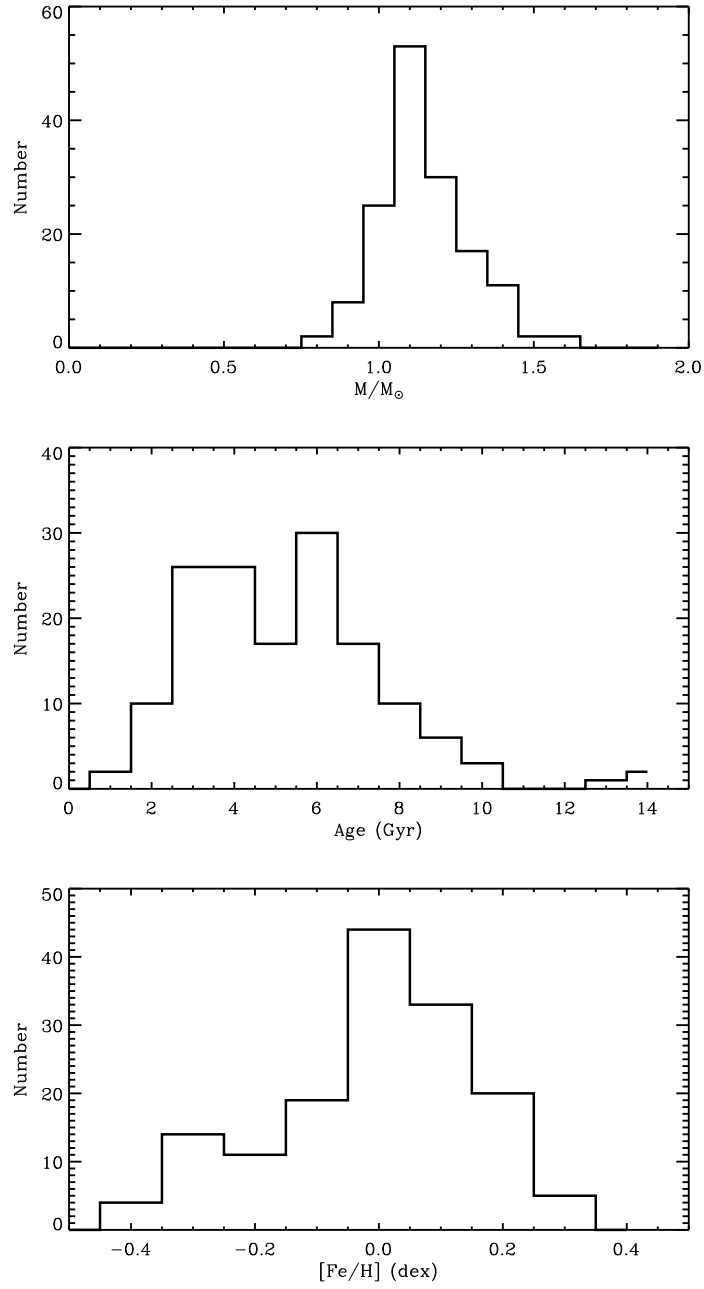
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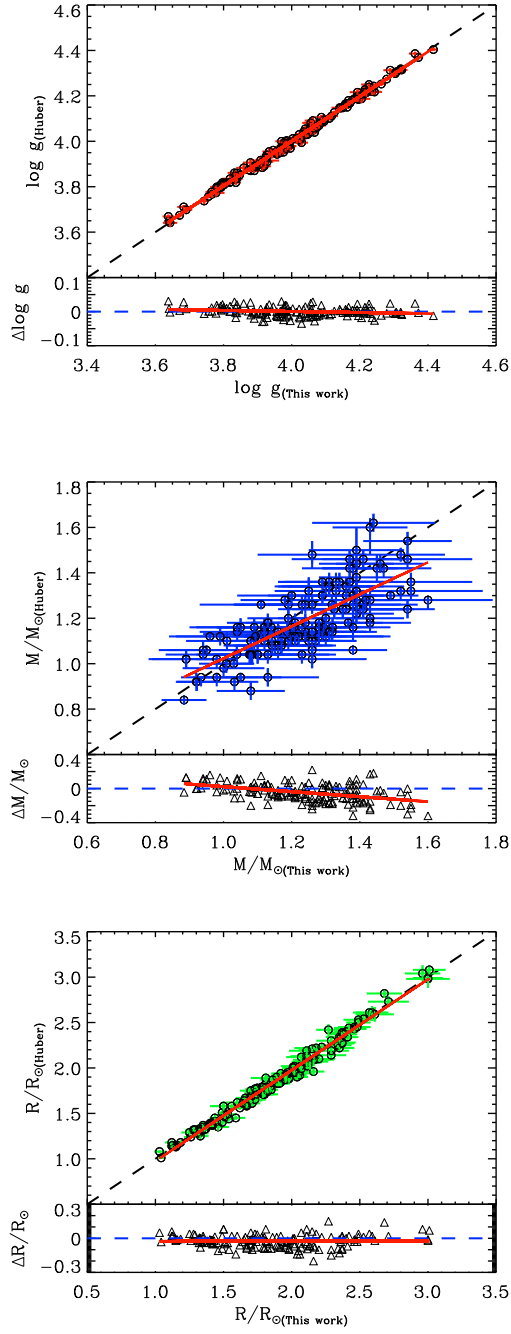
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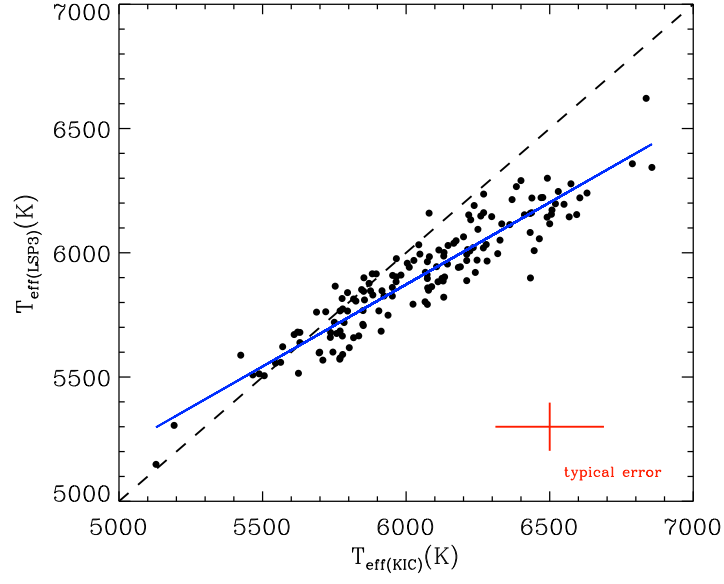
**Fig. 1** MSTO stars and evolution tracks in the  $T_{\text{eff}}\text{--}\log g$  plane. The black dotted lines and dashed lines represent the stellar tracks with masses between 0.8 and  $1.8 M_{\odot}$ ,  $Z_{\text{ini}}$  between 0.0085 and 0.04 and  $\alpha_{\text{MLT}}$  between 1.75 and 1.95 respectively. The red filled circles represent the 179 MSTO stars with parameters derived by the LSP3, listed in Table 1, typical error bars are presented in the bottom-right corner of the figure.



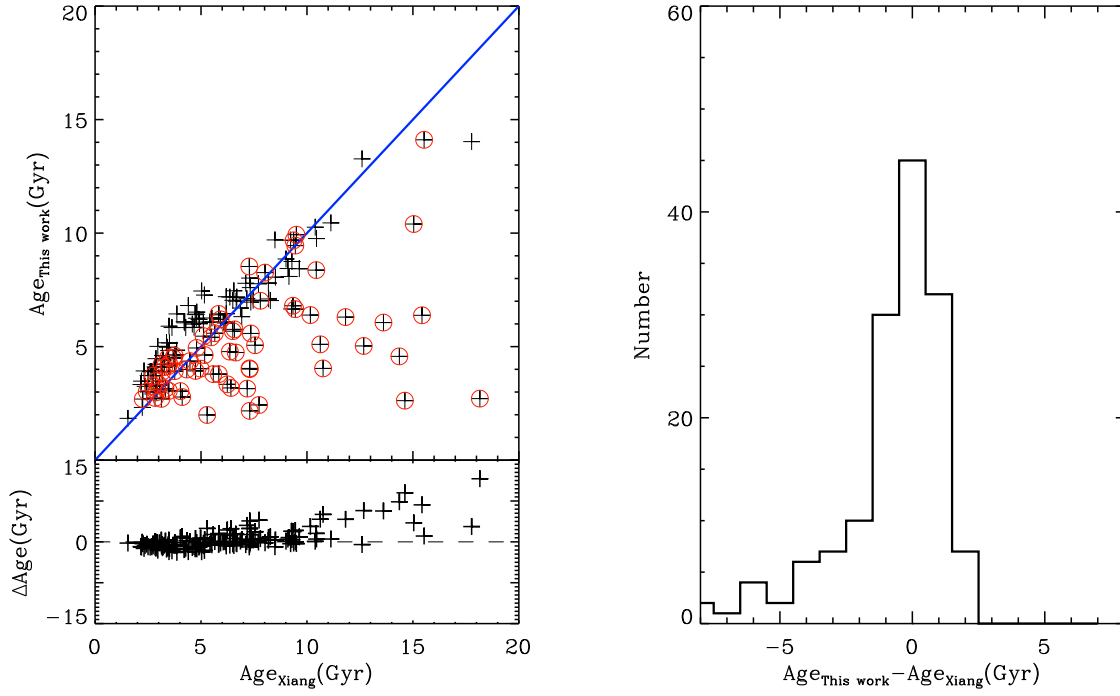
**Fig. 2** Distribution of 150 MSTO star with revised parameters. Different parameters lies in different panels, i.e., top: the distribution of masses, middle: the distribution of ages, bottom: distribution of metallicities.



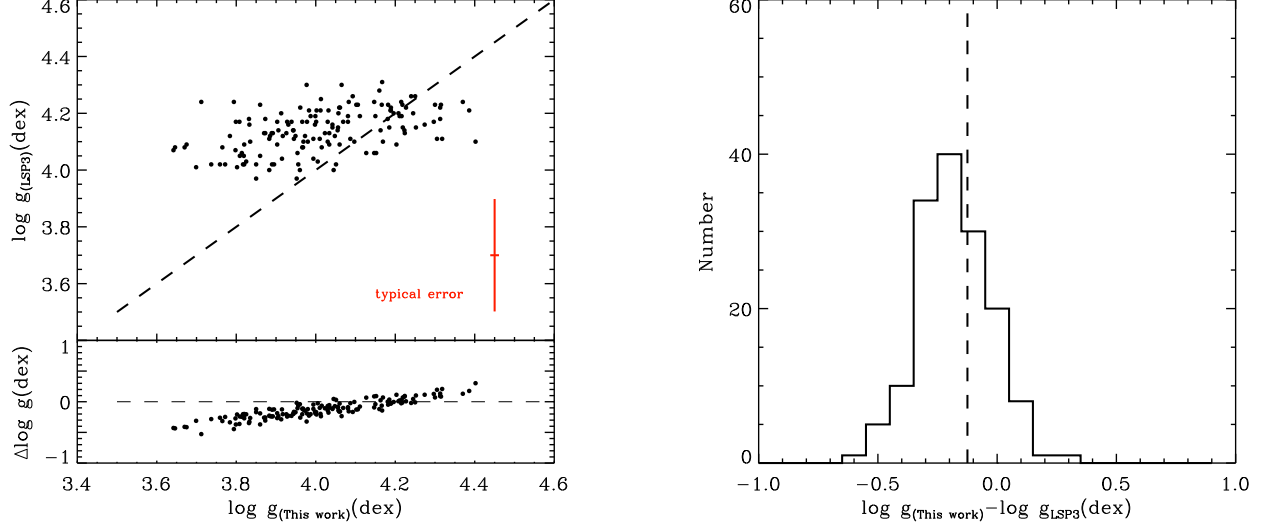
**Fig. 3** Comparison of the results of Huber et al. (2014) and our work. Different parameters lies in different panels, i.e., top: gravity  $\log g$ , middle: mass  $M$ , bottom: radius  $R$ . The dashed line shows line of equality, and the solid line shows a least square method fitting of both results.



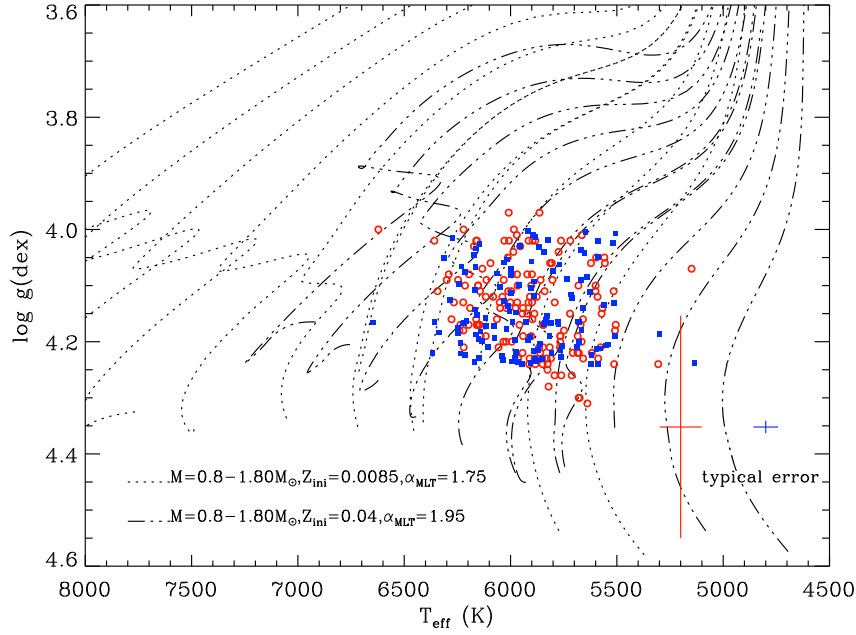
**Fig. 4** Comparison the  $T_{\text{eff}}$  from LAMOST and *Kepler*. The dashed line shows line of equality. Blue solid line shows least squares fitting of temperature. Typical error bars are presented in the bottom-right corner of the figure.



**Fig. 5** Comparison the ages from Xiang et al. (2015a). and our work. Left panel: comparison of age calculated by isochrone fitting (Xiang) and asteroseismology (our work). The blue solid line shows line of equality. The crosses shows the sample of 150 stars and red circles indicate the non-MSTO stars in our work. Right panel: histogram of differences of ages.



**Fig. 6** Comparison of the  $\log g$ , which derived from LSP3, with our work. Left panel: comparison of  $\log g$  between LSP3 and our work, the dashed line shows line of equality. Right panel: distribution of the difference in  $\log g$  between LSP3 (LSP3) and this work. The dashed line shows the median value of the distribution.



**Fig. 7** The location of 150 MSTO candidates with parameters from this work (blue filled circles) or the LSP3 (red open circles). Typical error bars are presented in the bottom corner of the figure. Black dotted lines and dashed lines are evolution tracks for  $M = 0.8 - 1.5 M_{\odot}$  and  $Z = 0.0085 - 0.04$ .

Table 1: Spectroscopic and Asteroseismic parameters of 179 targets.

Star KIC	$T_{\text{eff}}$ (K)	$\log g$ (dex)	[Fe/H] (dex)	$\Delta\nu$ ( $\mu\text{Hz}$ )	$\nu_{\text{max}}$ ( $\mu\text{Hz}$ )	Ref.
1725815	$6195 \pm 151$	$4.08 \pm 0.23$	$0.04 \pm 0.11$	$55.4 \pm 1.3$	$1045 \pm 47$	(1)
2010607	$6113 \pm 100$	$4.09 \pm 0.21$	$0.16 \pm 0.09$	$42.5 \pm 1.7$	$675 \pm 86$	(1)
2865774	$5792 \pm 93$	$4.13 \pm 0.20$	$0.07 \pm 0.09$	$62.7 \pm 2.7$	$1252 \pm 90$	(1)
2998253	$6116 \pm 100$	$4.19 \pm 0.19$	$0.16 \pm 0.09$	$89.0 \pm 3.6$		(1)
3112152	$5967 \pm 97$	$4.10 \pm 0.20$	$-0.03 \pm 0.09$	$63.9 \pm 1.9$	$1219 \pm 67$	(1)
3123191	$6145 \pm 101$	$4.19 \pm 0.19$	$-0.05 \pm 0.10$	$89.8 \pm 2.2$		(1)
3241581	$5577 \pm 89$	$4.21 \pm 0.18$	$0.27 \pm 0.09$	$122.9 \pm 1.6$		(1)
3344897	$6240 \pm 104$	$4.18 \pm 0.20$	$0.07 \pm 0.10$	$46.5 \pm 0.8$	$874 \pm 56$	(1)
3438633	$6082 \pm 100$	$4.12 \pm 0.20$	$-0.17 \pm 0.10$	$55.8 \pm 1.7$	$987 \pm 56$	(1)
3456181	$6236 \pm 104$	$4.17 \pm 0.20$	$0.07 \pm 0.10$	$52.0 \pm 0.8$	$921 \pm 30$	(1)
3656476	$5568 \pm 89$	$4.14 \pm 0.19$	$0.30 \pm 0.09$	$93.3 \pm 1.3$	$1887 \pm 40$	(1)
3942719	$5659 \pm 90$	$4.16 \pm 0.19$	$-0.31 \pm 0.11$	$45.9 \pm 3.7$	$780 \pm 38$	(1)
3967859	$5888 \pm 95$	$4.15 \pm 0.20$	$-0.27 \pm 0.10$	$93.6 \pm 3.0$		(1)
4049576	$5803 \pm 93$	$4.09 \pm 0.20$	$-0.19 \pm 0.10$	$51.9 \pm 1.7$	$942 \pm 70$	(1)
4141376	$5903 \pm 95$	$4.10 \pm 0.20$	$-0.28 \pm 0.11$	$128.8 \pm 1.3$	$2928 \pm 97$	(2)
4143755	$5681 \pm 91$	$4.10 \pm 0.20$	$-0.50 \pm 0.14$	$77.2 \pm 1.3$	$1458 \pm 57$	(2)
4165030	$5675 \pm 91$	$4.30 \pm 0.17$	$-0.29 \pm 0.10$	$61.8 \pm 1.5$	$1102 \pm 52$	(1)
4252818	$5680 \pm 91$	$4.30 \pm 0.17$	$0.08 \pm 0.09$	$69.2 \pm 7.4$	$1318 \pm 65$	(1)
4349452	$6161 \pm 102$	$4.16 \pm 0.20$	$-0.00 \pm 0.09$	$98.27 \pm 0.57$	$2106 \pm 50$	(2)
4465324	$5767 \pm 111$	$4.21 \pm 0.19$	$0.03 \pm 0.10$	$86.2 \pm 2.8$	$1744 \pm 64$	(1)
4543171	$5886 \pm 114$	$4.23 \pm 0.19$	$0.16 \pm 0.10$	$71.0 \pm 1.7$	$1480 \pm 54$	(1)
4554830	$5509 \pm 86$	$4.18 \pm 0.18$	$0.32 \pm 0.09$	$85.6 \pm 1.2$	$1751 \pm 42$	(1)
4577484	$5588 \pm 90$	$4.23 \pm 0.18$	$0.22 \pm 0.09$	$47.0 \pm 1.4$	$817 \pm 63$	(1)
4646780	$6344 \pm 108$	$4.11 \pm 0.21$	$-0.14 \pm 0.10$	$59.3 \pm 1.8$	$1104 \pm 76$	(1)
4672403	$5774 \pm 92$	$4.04 \pm 0.21$	$0.23 \pm 0.09$	$60.3 \pm 1.2$	$1107 \pm 44$	(1)
4739932	$5847 \pm 94$	$4.21 \pm 0.19$	$0.18 \pm 0.09$	$60.9 \pm 1.4$	$1132 \pm 78$	(1)
4755204	$5913 \pm 95$	$4.24 \pm 0.19$	$0.07 \pm 0.09$	$70.4 \pm 1.2$	$1360 \pm 42$	(1)
4841753	$5976 \pm 97$	$4.14 \pm 0.20$	$0.19 \pm 0.09$	$50.2 \pm 1.9$	$871 \pm 103$	(1)
4842436	$5761 \pm 92$	$4.26 \pm 0.18$	$0.24 \pm 0.09$	$72.6 \pm 3.0$	$1339 \pm 115$	(1)
4914423	$5852 \pm 94$	$4.23 \pm 0.18$	$0.15 \pm 0.09$	$81.5 \pm 1.6$	$1663 \pm 56$	(2)
4914923	$5766 \pm 92$	$4.20 \pm 0.19$	$0.21 \pm 0.09$	$88.6 \pm 0.3$	$1849 \pm 46$	(1)
4947253	$5909 \pm 95$	$4.12 \pm 0.20$	$-0.02 \pm 0.09$	$52.6 \pm 1.0$	$923 \pm 40$	(1)
5088536	$5830 \pm 93$	$4.23 \pm 0.18$	$-0.11 \pm 0.09$	$109.6 \pm 3.1$		(2)
5094751	$5826 \pm 93$	$4.24 \pm 0.19$	$0.01 \pm 0.09$	$91.1 \pm 2.3$	$1745 \pm 117$	(2)

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Table 1 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$\Delta\nu$	$\nu_{\text{max}}$	Ref.
KIC	(K)	(dex)	(dex)	( $\mu\text{Hz}$ )	( $\mu\text{Hz}$ )	
5095159	$5305 \pm 87$	$4.24 \pm 0.17$	$0.18 \pm 0.09$	$35.0 \pm 0.5$	$582 \pm 29$	(1)
5095850	$6622 \pm 118$	$4.00 \pm 0.23$	$0.15 \pm 0.11$	$46.7 \pm 3.2$	$791 \pm 37$	(1)
5253542	$5685 \pm 114$	$4.22 \pm 0.19$	$0.25 \pm 0.10$	$108.4 \pm 1.8$		(1)
5353186	$6038 \pm 98$	$4.12 \pm 0.20$	$0.17 \pm 0.09$	$47.4 \pm 1.2$	$872 \pm 31$	(1)
5511081	$5826 \pm 93$	$4.25 \pm 0.18$	$0.02 \pm 0.09$	$63.3 \pm 3.4$		(2)
5512589	$5720 \pm 91$	$4.15 \pm 0.19$	$0.20 \pm 0.09$	$68.2 \pm 0.7$	$1224 \pm 43$	(1)
5523099	$5513 \pm 89$	$4.24 \pm 0.18$	$0.03 \pm 0.09$	$41.8 \pm 0.9$	$722 \pm 31$	(1)
5561278	$5984 \pm 97$	$4.00 \pm 0.15$	$-0.03 \pm 0.09$	$56.2 \pm 1.7$	$1023 \pm 36$	(2)
5636956	$6214 \pm 103$	$4.10 \pm 0.21$	$0.21 \pm 0.10$	$55.4 \pm 0.9$	$1007 \pm 36$	(1)
5686856	$5897 \pm 95$	$4.16 \pm 0.19$	$0.11 \pm 0.09$	$62.3 \pm 1.7$	$1081 \pm 29$	(1)
5689219	$6278 \pm 105$	$4.16 \pm 0.20$	$-0.24 \pm 0.11$	$64.8 \pm 1.0$	$1282 \pm 76$	(1)
5780885	$5969 \pm 97$	$4.08 \pm 0.21$	$0.19 \pm 0.09$	$56.4 \pm 1.7$		(2)
5961597	$6300 \pm 106$	$4.09 \pm 0.21$	$0.14 \pm 0.10$	$59.8 \pm 0.9$	$1258 \pm 43$	(1)
6064910	$6172 \pm 102$	$4.03 \pm 0.22$	$-0.21 \pm 0.10$	$43.9 \pm 0.8$	$721 \pm 43$	(1)
6196457	$5877 \pm 94$	$4.12 \pm 0.20$	$0.19 \pm 0.09$	$66.6 \pm 1.1$	$1299 \pm 53$	(2)
6268648	$6032 \pm 98$	$4.09 \pm 0.21$	$-0.25 \pm 0.10$	$88.9 \pm 2.0$		(2)
6308642	$5671 \pm 91$	$4.17 \pm 0.19$	$-0.13 \pm 0.09$	$42.5 \pm 0.7$	$733 \pm 28$	(1)
6520835	$6029 \pm 98$	$4.02 \pm 0.22$	$-0.01 \pm 0.09$	$49.7 \pm 0.8$	$890 \pm 32$	(1)
6521045	$5806 \pm 93$	$4.06 \pm 0.21$	$0.12 \pm 0.09$	$77.0 \pm 1.1$	$1502 \pm 31$	(2)
6587236	$5921 \pm 95$	$4.08 \pm 0.21$	$-0.23 \pm 0.10$	$32.1 \pm 1.9$	$481 \pm 25$	(1)
6592305	$6001 \pm 97$	$4.13 \pm 0.20$	$0.14 \pm 0.09$	$46.8 \pm 0.6$	$842 \pm 23$	(1)
6593461	$5658 \pm 90$	$4.23 \pm 0.18$	$0.23 \pm 0.09$	$90.8 \pm 2.0$	$1927 \pm 338$	(1)
6603624	$5515 \pm 89$	$4.11 \pm 0.19$	$0.29 \pm 0.09$	$110.4 \pm 1.7$	$2402 \pm 51$	(1)
6605673	$6007 \pm 98$	$4.02 \pm 0.22$	$-0.26 \pm 0.11$	$68.0 \pm 0.9$	$1273 \pm 49$	(1)
6688822	$5559 \pm 89$	$4.05 \pm 0.20$	$0.29 \pm 0.09$	$47.1 \pm 1.0$	$811 \pm 33$	(1)
6689943	$5942 \pm 96$	$4.14 \pm 0.20$	$0.10 \pm 0.09$	$80.7 \pm 1.5$	$1682 \pm 66$	(1)
6693861	$5749 \pm 92$	$4.18 \pm 0.19$	$-0.28 \pm 0.10$	$46.7 \pm 1.0$	$765 \pm 42$	(1)
6766513	$6154 \pm 102$	$4.17 \pm 0.20$	$-0.06 \pm 0.10$	$51.3 \pm 1.1$	$883 \pm 84$	(1)
6853020	$6161 \pm 102$	$4.02 \pm 0.22$	$0.15 \pm 0.10$	$54.8 \pm 1.3$		(1)
6863041	$5622 \pm 90$	$4.06 \pm 0.20$	$0.24 \pm 0.09$	$41.9 \pm 1.1$	$775 \pm 32$	(1)
7038145	$5896 \pm 115$	$4.02 \pm 0.22$	$0.06 \pm 0.10$	$43.0 \pm 0.7$	$764 \pm 30$	(1)
7107778	$5149 \pm 87$	$4.07 \pm 0.19$	$0.11 \pm 0.10$	$31.4 \pm 0.6$	$529 \pm 15$	(1)
7133688	$6291 \pm 106$	$4.08 \pm 0.21$	$0.17 \pm 0.10$	$59.7 \pm 2.1$	$1146 \pm 74$	(1)
7199397	$5915 \pm 95$	$4.02 \pm 0.21$	$-0.07 \pm 0.09$	$38.6 \pm 0.68$	$643 \pm 17$	(2)
7264595	$5665 \pm 91$	$4.01 \pm 0.21$	$-0.12 \pm 0.09$	$36.3 \pm 1.6$	$543 \pm 24$	(1)

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Table 1 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$\Delta\nu$	$\nu_{\text{max}}$	Ref.
KIC	(K)	(dex)	(dex)	( $\mu\text{Hz}$ )	( $\mu\text{Hz}$ )	
7282890	$6266 \pm 105$	$4.13 \pm 0.20$	$0.22 \pm 0.10$	$46.0 \pm 0.7$	$834 \pm 49$	(1)
7383120	$5995 \pm 97$	$4.20 \pm 0.19$	$-0.08 \pm 0.09$	$85.6 \pm 2.5$	$1794 \pm 85$	(1)
7386523	$5840 \pm 94$	$4.11 \pm 0.20$	$0.15 \pm 0.09$	$48.3 \pm 2.0$	$919 \pm 113$	(1)
7429287	$5618 \pm 90$	$4.22 \pm 0.19$	$-0.31 \pm 0.11$	$71.2 \pm 1.4$	$1345 \pm 34$	(1)
7591963	$5903 \pm 95$	$4.19 \pm 0.19$	$0.13 \pm 0.09$	$59.2 \pm 0.9$	$1096 \pm 48$	(1)
7680114	$5810 \pm 93$	$4.23 \pm 0.18$	$0.18 \pm 0.09$	$85.1 \pm 1.3$	$1684 \pm 47$	(1)
7833440	$6051 \pm 99$	$4.13 \pm 0.20$	$-0.27 \pm 0.11$	$66.2 \pm 1.1$	$1118 \pm 80$	(1)
7880676	$6019 \pm 98$	$4.14 \pm 0.20$	$0.11 \pm 0.09$	$53.7 \pm 1.0$	$1017 \pm 43$	(1)
7910848	$5964 \pm 96$	$4.23 \pm 0.19$	$0.16 \pm 0.09$	$73.3 \pm 1.4$		(1)
8012842	$5712 \pm 91$	$4.26 \pm 0.18$	$0.22 \pm 0.09$	$95.8 \pm 2.3$	$2000 \pm 251$	(1)
8016496	$6009 \pm 98$	$3.97 \pm 0.22$	$-0.03 \pm 0.09$	$55.0 \pm 1.2$	$1053 \pm 48$	(1)
8019508	$5994 \pm 97$	$4.08 \pm 0.21$	$0.14 \pm 0.09$	$37.7 \pm 2.0$	$658 \pm 35$	(1)
8045442	$5899 \pm 95$	$4.08 \pm 0.21$	$0.15 \pm 0.09$	$31.8 \pm 0.6$		(1)
8298626	$5969 \pm 97$	$4.13 \pm 0.20$	$-0.02 \pm 0.09$	$91.4 \pm 1.6$	$1861 \pm 69$	(1)
8349582	$5600 \pm 90$	$4.10 \pm 0.20$	$0.24 \pm 0.09$	$83.6 \pm 1.4$	$1677 \pm 90$	(2)
8367710	$6117 \pm 140$	$4.12 \pm 0.22$	$0.07 \pm 0.11$	$56.1 \pm 1.1$	$1085 \pm 52$	(1)
8391021	$6094 \pm 100$	$4.06 \pm 0.21$	$-0.29 \pm 0.11$	$79.7 \pm 1.4$	$1595 \pm 45$	(1)
8394589	$6011 \pm 98$	$4.11 \pm 0.20$	$-0.28 \pm 0.11$	$109.5 \pm 1.9$	$2165 \pm 124$	(1)
8420801	$6155 \pm 102$	$4.17 \pm 0.20$	$0.13 \pm 0.10$	$67.4 \pm 1.8$	$1287 \pm 86$	(1)
8491374	$6197 \pm 103$	$4.17 \pm 0.20$	$0.09 \pm 0.10$	$57.5 \pm 2.2$	$1022 \pm 94$	(1)
8493735	$5884 \pm 95$	$4.02 \pm 0.21$	$-0.02 \pm 0.09$	$38.86 \pm 1.94$	$586.1 \pm 29.3$	(3)
8493800	$5921 \pm 95$	$4.15 \pm 0.20$	$-0.00 \pm 0.09$	$83.6 \pm 1.8$	$1850 \pm 109$	(1)
8494142	$5955 \pm 96$	$4.03 \pm 0.22$	$-0.04 \pm 0.09$	$61.8 \pm 0.76$	$1133 \pm 81$	(2)
8554498	$5866 \pm 94$	$4.21 \pm 0.19$	$0.19 \pm 0.09$	$61.98 \pm 0.96$	$1153 \pm 76$	(2)
8621637	$5679 \pm 91$	$4.22 \pm 0.18$	$0.18 \pm 0.09$	$57.1 \pm 1.4$	$1032 \pm 47$	(1)
8684730	$5915 \pm 95$	$4.13 \pm 0.20$	$0.15 \pm 0.09$	$51.7 \pm 1.9$	$962 \pm 39$	(2)
8776961	$5816 \pm 93$	$4.21 \pm 0.09$	$0.08 \pm 0.09$	$64.7 \pm 1.3$	$1208 \pm 33$	(1)
8802782	$5864 \pm 94$	$3.97 \pm 0.22$	$0.24 \pm 0.09$	$44.9 \pm 1.7$	$784 \pm 54$	(1)
8817551	$5763 \pm 92$	$4.02 \pm 0.21$	$0.25 \pm 0.09$	$42.7 \pm 0.8$	$740 \pm 34$	(1)
8868481	$5591 \pm 90$	$4.12 \pm 0.20$	$0.04 \pm 0.09$	$40.4 \pm 1.3$	$673 \pm 42$	(1)
8915084	$5814 \pm 93$	$4.06 \pm 0.21$	$0.13 \pm 0.09$	$79.1 \pm 1.4$	$1594 \pm 59$	(1)
8938364	$5639 \pm 90$	$4.31 \pm 0.17$	$-0.14 \pm 0.09$	$85.8 \pm 1.1$	$1681 \pm 37$	(1)
8956017	$6221 \pm 104$	$4.00 \pm 0.22$	$0.15 \pm 0.10$	$62.2 \pm 2.2$	$1234 \pm 51$	(1)
8981766	$6190 \pm 103$	$4.14 \pm 0.20$	$0.19 \pm 0.10$	$63.1 \pm 1.6$	$1277 \pm 32$	(1)
9005973	$5821 \pm 93$	$4.28 \pm 0.18$	$0.00 \pm 0.09$	$82.6 \pm 2$	$1560 \pm 141$	(1)

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Table 1 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$\Delta\nu$	$\nu_{\text{max}}$	Ref.
KIC	(K)	(dex)	(dex)	( $\mu\text{Hz}$ )	( $\mu\text{Hz}$ )	
9116461	$6222 \pm 104$	$4.17 \pm 0.20$	$0.03 \pm 0.10$	$104.7 \pm 2.3$	$2334 \pm 197$	(1)
9335972	$5719 \pm 91$	$4.02 \pm 0.21$	$0.13 \pm 0.09$	$46.2 \pm 1.6$	$802 \pm 20$	(1)
9446628	$6146 \pm 101$	$4.17 \pm 0.20$	$-0.04 \pm 0.09$	$56.1 \pm 2.5$	$1031 \pm 76$	(1)
9451706	$5944 \pm 96$	$4.15 \pm 0.20$	$0.22 \pm 0.09$	$95.0 \pm 1.6$	$1988 \pm 86$	(2)
9451741	$5666 \pm 91$	$4.20 \pm 0.19$	$0.22 \pm 0.09$	$94.4 \pm 1.9$	$2079 \pm 105$	(1)
9592705	$6049 \pm 99$	$4.14 \pm 0.20$	$0.17 \pm 0.09$	$53.5 \pm 0.32$	$1008 \pm 21$	(2)
9664694	$6160 \pm 102$	$4.17 \pm 0.20$	$-0.01 \pm 0.09$	$41.2 \pm 1.1$	$722 \pm 27$	(1)
9696358	$5987 \pm 97$	$4.04 \pm 0.21$	$0.12 \pm 0.09$	$51.4 \pm 3.7$		(2)
9697131	$6143 \pm 101$	$4.11 \pm 0.21$	$0.04 \pm 0.09$	$60.2 \pm 1.2$	$1196 \pm 80$	(1)
9700430	$5883 \pm 95$	$4.24 \pm 0.18$	$0.13 \pm 0.09$	$78.9 \pm 1.5$	$1623 \pm 94$	(1)
9715099	$6133 \pm 101$	$4.07 \pm 0.21$	$0.15 \pm 0.09$	$40.7 \pm 0.7$		(1)
9754284	$5941 \pm 96$	$4.19 \pm 0.19$	$0.09 \pm 0.09$	$73.8 \pm 1.5$	$1496 \pm 90$	(1)
9757640	$5505 \pm 89$	$4.17 \pm 0.19$	$0.30 \pm 0.09$	$61.7 \pm 1.0$	$1142 \pm 86$	(1)
9778067	$5899 \pm 95$	$4.13 \pm 0.20$	$-0.45 \pm 0.13$	$50.0 \pm 1.7$	$890 \pm 46$	(1)
9787965	$6064 \pm 99$	$4.16 \pm 0.20$	$0.09 \pm 0.09$	$53.4 \pm 2.3$	$912 \pm 60$	(1)
9791157	$5845 \pm 94$	$4.17 \pm 0.19$	$0.12 \pm 0.09$	$54.4 \pm 1.0$	$984 \pm 43$	(1)
9872292	$6148 \pm 101$	$4.17 \pm 0.20$	$-0.01 \pm 0.09$	$63.8 \pm 1.2$		(2)
9962623	$5684 \pm 91$	$4.19 \pm 0.19$	$-0.00 \pm 0.09$	$82.2 \pm 2.5$	$1543 \pm 164$	(1)
10019747	$5572 \pm 89$	$4.15 \pm 0.19$	$0.28 \pm 0.09$	$66.7 \pm 1.5$	$1248 \pm 41$	(1)
10079226	$5849 \pm 94$	$4.24 \pm 0.18$	$0.18 \pm 0.09$	$116.4 \pm 1.9$	$2689 \pm 93$	(1)
10322381	$6056 \pm 99$	$4.21 \pm 0.19$	$-0.26 \pm 0.11$	$86.6 \pm 4.3$	$1657 \pm 155$	(1)
10351059	$6247 \pm 104$	$4.09 \pm 0.21$	$0.23 \pm 0.10$	$65.0 \pm 0.9$	$1329 \pm 68$	(1)
10398597	$6153 \pm 102$	$4.10 \pm 0.21$	$0.19 \pm 0.10$	$57.6 \pm 1.5$	$973 \pm 85$	(1)
10417911	$5556 \pm 89$	$4.06 \pm 0.20$	$0.29 \pm 0.09$	$56.1 \pm 2.8$	$1022 \pm 61$	(1)
10586004	$5766 \pm 92$	$4.19 \pm 0.19$	$0.25 \pm 0.09$	$69.2 \pm 1.4$	$1395 \pm 40$	(2)
10727922	$5997 \pm 97$	$4.11 \pm 0.20$	$-0.15 \pm 0.10$	$55.4 \pm 2.9$	$979 \pm 56$	(1)
10731424	$6158 \pm 102$	$4.02 \pm 0.22$	$0.03 \pm 0.09$	$37.6 \pm 2.3$	$670 \pm 45$	(1)
10732098	$5766 \pm 92$	$4.19 \pm 0.19$	$0.13 \pm 0.09$	$62.1 \pm 1.1$	$1082 \pm 37$	(1)
10875245	$5707 \pm 91$	$4.22 \pm 0.18$	$0.25 \pm 0.09$	$86.7 \pm 3.7$	$1711 \pm 107$	(2)
10923629	$6013 \pm 98$	$4.05 \pm 0.21$	$0.20 \pm 0.09$	$42.5 \pm 0.8$	$711 \pm 37$	(1)
11083308	$6021 \pm 98$	$4.20 \pm 0.19$	$0.07 \pm 0.09$	$51.2 \pm 1.3$	$902 \pm 39$	(1)
11133306	$5910 \pm 95$	$4.23 \pm 0.18$	$0.00 \pm 0.09$	$107.9 \pm 1.9$	$2381 \pm 95$	(2)
11138101	$6152 \pm 102$	$4.10 \pm 0.21$	$0.05 \pm 0.09$	$43.8 \pm 1.3$		(1)
11188219	$5793 \pm 93$	$4.26 \pm 0.18$	$0.24 \pm 0.09$	$95.6 \pm 3.4$	$1843 \pm 106$	(1)
11193681	$5597 \pm 90$	$4.05 \pm 0.20$	$0.26 \pm 0.09$	$42.1 \pm 0.7$	$749 \pm 36$	(1)

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Table 1 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$\Delta\nu$	$\nu_{\text{max}}$	Ref.
KIC	(K)	(dex)	(dex)	( $\mu\text{Hz}$ )	( $\mu\text{Hz}$ )	
11244118	$5600 \pm 90$	$4.11 \pm 0.20$	$0.26 \pm 0.09$	$71.3 \pm 0.9$	$1420 \pm 31$	(1)
11506988	$6220 \pm 104$	$4.21 \pm 0.19$	$-0.16 \pm 0.10$	$58.7 \pm 1.0$	$1056 \pm 81$	(1)
11507653	$5847 \pm 94$	$4.17 \pm 0.19$	$0.22 \pm 0.09$	$70.0 \pm 2.3$	$1359 \pm 217$	(1)
11611414	$6033 \pm 98$	$4.20 \pm 0.19$	$-0.02 \pm 0.09$	$68.3 \pm 3.3$	$1162 \pm 127$	(1)
11771760	$5859 \pm 94$	$4.09 \pm 0.20$	$0.04 \pm 0.09$	$32.4 \pm 0.7$	$535 \pm 19$	(1)
11817562	$5970 \pm 97$	$4.01 \pm 0.22$	$0.20 \pm 0.09$	$41.1 \pm 0.7$	$713 \pm 46$	(1)
11919192	$6358 \pm 108$	$4.02 \pm 0.22$	$-0.16 \pm 0.11$	$46.8 \pm 1.7$	$903 \pm 48$	(1)
11971746	$5861 \pm 94$	$4.22 \pm 0.19$	$0.25 \pm 0.09$	$90.8 \pm 2.1$	$1911 \pm 124$	(1)
12068975	$5958 \pm 96$	$4.17 \pm 0.19$	$-0.31 \pm 0.11$	$108.4 \pm 3.1$	$2298 \pm 105$	(2)
12069127	$6223 \pm 104$	$4.13 \pm 0.20$	$0.18 \pm 0.10$	$48.2 \pm 0.9$	$829 \pm 41$	(1)
12265063	$5944 \pm 96$	$4.22 \pm 0.19$	$-0.05 \pm 0.09$	$67.9 \pm 1.5$	$1314 \pm 139$	(1)
4167879	$5770 \pm 109$	$4.14 \pm 0.20$	$-0.24 \pm 0.11$	$3.22 \pm 0.059$	$34.48 \pm 5.64$	(6)
4245297	$5763 \pm 92$	$4.22 \pm 0.18$	$0.16 \pm 0.09$	$3.42 \pm 0.078$	$32.50 \pm 3.35$	(6)
4466582	$5627 \pm 90$	$4.30 \pm 0.17$	$0.09 \pm 0.09$	$10.334 \pm 1.033$	$116.809 \pm 11.68$	(5)
4581415	$5827 \pm 103$	$4.01 \pm 0.22$	$-0.32 \pm 0.12$	$3.5325 \pm 0.086$	$30.454 \pm 2.157$	(6)
5176520	$5444 \pm 88$	$4.36 \pm 0.16$	$-0.50 \pm 0.14$	$12.81 \pm 1.281$	$153.731 \pm 15.37$	(5)
5649546	$5744 \pm 107$	$4.06 \pm 0.21$	$0.11 \pm 0.10$			
5683538	$5860 \pm 94$	$4.09 \pm 0.20$	$-0.52 \pm 0.14$	$42 \pm 1.4$	$695 \pm 32$	(1)
5814204	$6288 \pm 106$	$4.12 \pm 0.20$	$0.03 \pm 0.10$	$5.02 \pm 0.12$	$51.924 \pm 2.37$	(6)
5892169	$5730 \pm 88$	$4.08 \pm 0.20$	$0.08 \pm 0.09$	$29.9 \pm 0.4$	$492 \pm 16$	(1)
6209592	$5946 \pm 145$	$3.99 \pm 0.26$	$-0.40 \pm 0.16$			
6290627	$5352 \pm 87$	$4.06 \pm 0.20$	$-0.20 \pm 0.10$	$22.4 \pm 2.24$	$318.4 \pm 31.84$	(3)
6347797	$6664 \pm 136$	$4.15 \pm 0.20$	$-0.24 \pm 0.13$			
6363365	$5894 \pm 95$	$4.20 \pm 0.19$	$-0.64 \pm 0.18$	$86.3 \pm 1.4$	$1629 \pm 80$	(1)
6763633	$6321 \pm 107$	$4.11 \pm 0.21$	$0.20 \pm 0.10$			
6852624	$5700 \pm 92$	$4.23 \pm 0.18$	$-0.30 \pm 0.11$			
7955597	$5780 \pm 92$	$4.15 \pm 0.19$	$0.11 \pm 0.09$	$12.46 \pm 0.23$	$155.63 \pm 7.33$	(6)
8520552	$7383 \pm 154$	$4.02 \pm 0.22$	$-0.57 \pm 0.22$	$6.2147 \pm 0.172$	$60.498 \pm 1.439$	(6)
8747199	$5664 \pm 122$	$4.25 \pm 0.19$	$-0.60 \pm 0.21$			
9697262	$5409 \pm 88$	$4.06 \pm 0.20$	$-0.08 \pm 0.09$			
9723621	$5795 \pm 93$	$4.10 \pm 0.20$	$0.19 \pm 0.09$	$6.04 \pm 0.13$	$67.96 \pm 4.41$	(6)
9768011	$7322 \pm 210$	$3.96 \pm 0.25$	$-0.80 \pm 0.35$	$57 \pm 3.2$	$918 \pm 48$	(1)
9778260	$5543 \pm 89$	$4.24 \pm 0.18$	$0.01 \pm 0.09$			
9906321	$5604 \pm 90$	$4.13 \pm 0.19$	$-0.17 \pm 0.10$	$5.24 \pm 0.15$	$49.76 \pm 1.45$	(6)
10097375	$5612 \pm 90$	$4.32 \pm 0.17$	$0.10 \pm 0.09$			

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Table 1 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$\Delta\nu$	$\nu_{\text{max}}$	Ref.
KIC	(K)	(dex)	(dex)	( $\mu\text{Hz}$ )	( $\mu\text{Hz}$ )	
10752443	$6646 \pm 165$	$4.06 \pm 0.23$	$-0.29 \pm 0.15$			
10873176	$6058 \pm 99$	$4.05 \pm 0.21$	$-0.68 \pm 0.20$	$49.6 \pm 0.9$	$821 \pm 27$	(1)
10919121	$5577 \pm 117$	$4.16 \pm 0.21$	$0.22 \pm 0.11$			
11136690	$6032 \pm 136$	$4.16 \pm 0.21$	$-0.81 \pm 0.31$			
11466403	$5598 \pm 90$	$4.16 \pm 0.19$	$-0.22 \pm 0.10$	$8.024 \pm 0.80$	$84.626 \pm 8.46$	(5)

Reference: (1) (Chaplin et al. 2014); (2) (Huber et al. 2013) (3) (Mosser et al. 2012); (4) (Appourchaux et al. 2012); (5) (Stello et al. 2013); (6) (Hekker et al. 2011)

**Table 2** Input parameters for Grid Calculation.

$[\text{Fe}/\text{H}]_{\text{ini}}$ (dex)	-0.3 $\sim$ +0.4	$\delta[\text{Fe}/\text{H}]$ (dex)	0.1
$Z_{\text{ini}}$ (dex)	0.0085 $\sim$ 0.0400		
$M$ ( $M_{\odot}$ )	0.8 $\sim$ 2.5	$\delta M$ ( $M_{\odot}$ )	0.02
$\alpha$	1.75, 1.842, 1.95	$\delta\alpha$	0.1

Table 3: Fundamental Parameters of 150 stars.

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$M$	$R$	Age	$L$
KIC	(K)	(dex)	(dex)	( $M_{\odot}$ )	( $R_{\odot}$ )	(Gyr)	( $L_{\odot}$ )
<i>MSTO stars</i>							
1725815	6225 <sup>+77</sup> <sub>-93</sub>	3.966 <sup>+0.008</sup> <sub>-0.011</sub>	0.01 <sup>+0.10</sup> <sub>-0.10</sub>	1.28 <sup>+0.04</sup> <sub>-0.04</sub>	1.95 <sup>+0.03</sup> <sub>-0.03</sub>	3.94 <sup>+0.55</sup> <sub>-0.34</sub>	5.14 <sup>+0.36</sup> <sub>-0.38</sub>
2865774	5807 <sup>+52</sup> <sub>-60</sub>	4.022 <sup>+0.017</sup> <sub>-0.017</sub>	0.10 <sup>+0.03</sup> <sub>-0.08</sub>	1.12 <sup>+0.04</sup> <sub>-0.04</sub>	1.71 <sup>+0.04</sup> <sub>-0.04</sub>	7.03 <sup>+0.69</sup> <sub>-0.76</sub>	2.99 <sup>+0.19</sup> <sub>-0.16</sub>
2998253	6107 <sup>+62</sup> <sub>-56</sub>	4.214 <sup>+0.018</sup> <sub>-0.016</sub>	0.10 <sup>+0.10</sup> <sub>-0.11</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.39 <sup>+0.03</sup> <sub>-0.04</sub>	5.01 <sup>+0.81</sup> <sub>-0.61</sub>	2.42 <sup>+0.17</sup> <sub>-0.15</sub>
3112152	5980 <sup>+53</sup> <sub>-62</sub>	4.029 <sup>+0.013</sup> <sub>-0.013</sub>	-0.02 <sup>+0.02</sup> <sub>-0.07</sub>	1.14 <sup>+0.04</sup> <sub>-0.04</sub>	1.71 <sup>+0.03</sup> <sub>-0.03</sub>	6.04 <sup>+0.74</sup> <sub>-0.66</sub>	3.37 <sup>+0.20</sup> <sub>-0.20</sub>
3123191	6134 <sup>+75</sup> <sub>-54</sub>	4.217 <sup>+0.012</sup> <sub>-0.012</sub>	-0.02 <sup>+0.03</sup> <sub>-0.10</sub>	1.12 <sup>+0.02</sup> <sub>-0.04</sub>	1.37 <sup>+0.02</sup> <sub>-0.02</sub>	5.16 <sup>+0.61</sup> <sub>-0.66</sub>	2.39 <sup>+0.13</sup> <sub>-0.11</sub>
3241581	5580 <sup>+53</sup> <sub>-54</sub>	4.386 <sup>+0.007</sup> <sub>-0.008</sub>	0.34 <sup>+0.11</sup> <sub>-0.15</sub>	1.02 <sup>+0.04</sup> <sub>-0.04</sub>	1.08 <sup>+0.02</sup> <sub>-0.01</sub>	6.39 <sup>+1.93</sup> <sub>-1.34</sub>	1.02 <sup>+0.05</sup> <sub>-0.06</sub>
3656476	5543 <sup>+75</sup> <sub>-48</sub>	4.224 <sup>+0.004</sup> <sub>-0.006</sub>	0.32 <sup>+0.10</sup> <sub>-0.10</sub>	1.04 <sup>+0.02</sup> <sub>-0.04</sub>	1.31 <sup>+0.01</sup> <sub>-0.01</sub>	9.69 <sup>+1.10</sup> <sub>-1.59</sub>	1.46 <sup>+0.09</sup> <sub>-0.08</sub>
3967859	5890 <sup>+56</sup> <sub>-57</sub>	4.218 <sup>+0.015</sup> <sub>-0.015</sub>	-0.24 <sup>+0.01</sup> <sub>-0.10</sub>	0.94 <sup>+0.04</sup> <sub>-0.04</sub>	1.25 <sup>+0.03</sup> <sub>-0.03</sub>	9.76 <sup>+1.90</sup> <sub>-1.10</sub>	1.70 <sup>+0.12</sup> <sub>-0.11</sub>
4141376	5898 <sup>+58</sup> <sub>-53</sub>	4.404 <sup>+0.006</sup> <sub>-0.007</sub>	-0.29 <sup>+0.11</sup> <sub>-0.010</sub>	0.92 <sup>+0.04</sup> <sub>-0.02</sub>	1.01 <sup>+0.01</sup> <sub>-0.01</sub>	6.66 <sup>+1.71</sup> <sub>-1.37</sub>	1.11 <sup>+0.07</sup> <sub>-0.06</sub>
4252818	5682 <sup>+55</sup> <sub>-57</sub>	4.065 <sup>+0.019</sup> <sub>-0.019</sub>	0.11 <sup>+0.10</sup> <sub>-0.10</sub>	1.06 <sup>+0.02</sup> <sub>-0.04</sub>	1.58 <sup>+0.05</sup> <sub>-0.05</sub>	8.75 <sup>+1.23</sup> <sub>-0.79</sub>	2.35 <sup>+0.19</sup> <sub>-0.17</sub>
4465324	5776 <sup>+70</sup> <sub>-71</sub>	4.188 <sup>+0.012</sup> <sub>-0.013</sub>	0.09 <sup>+0.10</sup> <sub>-0.10</sub>	1.04 <sup>+0.04</sup> <sub>-0.04</sub>	1.36 <sup>+0.03</sup> <sub>-0.03</sub>	8.44 <sup>+1.61</sup> <sub>-1.19</sub>	1.85 <sup>+0.14</sup> <sub>-0.13</sub>
4543171	5896 <sup>+61</sup> <sub>-68</sub>	4.101 <sup>+0.008</sup> <sub>-0.009</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.59 <sup>+0.02</sup> <sub>-0.02</sub>	6.05 <sup>+0.91</sup> <sub>-0.58</sub>	2.74 <sup>+0.15</sup> <sub>-0.17</sub>
4554830	5510 <sup>+49</sup> <sub>-51</sub>	4.180 <sup>+0.007</sup> <sub>-0.007</sub>	0.33 <sup>+0.01</sup> <sub>-0.01</sub>	1.02 <sup>+0.04</sup> <sub>-0.02</sub>	1.37 <sup>+0.02</sup> <sub>-0.02</sub>	10.26 <sup>+1.06</sup> <sub>-1.01</sub>	1.56 <sup>+0.08</sup> <sub>-0.08</sub>
4646780	6360 <sup>+59</sup> <sub>-73</sub>	3.994 <sup>+0.014</sup> <sub>-0.014</sub>	-0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.20 <sup>+0.04</sup> <sub>-0.04</sub>	1.84 <sup>+0.04</sup> <sub>-0.04</sub>	4.22 <sup>+0.47</sup> <sub>-0.47</sub>	4.97 <sup>+0.30</sup> <sub>-0.35</sub>
4739932	5837 <sup>+59</sup> <sub>-55</sub>	4.003 <sup>+0.011</sup> <sub>-0.012</sub>	0.13 <sup>+0.07</sup> <sub>-0.04</sub>	1.16 <sup>+0.04</sup> <sub>-0.02</sub>	1.79 <sup>+0.03</sup> <sub>-0.03</sub>	6.25 <sup>+0.60</sup> <sub>-0.47</sub>	3.34 <sup>+0.17</sup> <sub>-0.17</sub>
4755204	5925 <sup>+54</sup> <sub>-58</sub>	4.082 <sup>+0.009</sup> <sub>-0.008</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.14 <sup>+0.04</sup> <sub>-0.04</sub>	1.61 <sup>+0.02</sup> <sub>-0.02</sub>	6.20 <sup>+1.02</sup> <sub>-0.63</sub>	2.87 <sup>+0.16</sup> <sub>-0.15</sub>
4842436	5779 <sup>+48</sup> <sub>-59</sub>	4.091 <sup>+0.018</sup> <sub>-0.016</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.12 <sup>+0.02</sup> <sub>-0.02</sub>	1.58 <sup>+0.03</sup> <sub>-0.02</sub>	7.45 <sup>+0.73</sup> <sub>-0.95</sub>	2.50 <sup>+0.15</sup> <sub>-0.14</sub>
4914423	5860 <sup>+55</sup> <sub>-54</sub>	4.166 <sup>+0.008</sup> <sub>-0.010</sub>	0.19 <sup>+0.01</sup> <sub>-0.10</sub>	1.12 <sup>+0.02</sup> <sub>-0.04</sub>	1.45 <sup>+0.02</sup> <sub>-0.02</sub>	6.52 <sup>+0.98</sup> <sub>-0.63</sub>	2.24 <sup>+0.11</sup> <sub>-0.11</sub>
4914923	5785 <sup>+44</sup> <sub>-50</sub>	4.208 <sup>+0.004</sup> <sub>-0.004</sub>	0.20 <sup>+0.01</sup> <sub>-0.02</sub>	1.10 <sup>+0.02</sup> <sub>-0.04</sub>	1.37 <sup>+0.01</sup> <sub>-0.01</sub>	7.11 <sup>+0.90</sup> <sub>-0.80</sub>	1.89 <sup>+0.07</sup> <sub>-0.12</sub>
4947253	5903 <sup>+57</sup> <sub>-59</sub>	3.917 <sup>+0.009</sup> <sub>-0.010</sub>	-0.06 <sup>+0.06</sup> <sub>-0.04</sub>	1.18 <sup>+0.02</sup> <sub>-0.04</sub>	1.97 <sup>+0.03</sup> <sub>-0.03</sub>	5.58 <sup>+0.45</sup> <sub>-0.37</sub>	4.25 <sup>+0.24</sup> <sub>-0.24</sub>
5094751	5833 <sup>+58</sup> <sub>-56</sub>	4.215 <sup>+0.011</sup> <sub>-0.010</sub>	-0.02 <sup>+0.10</sup> <sub>-0.10</sub>	1.04 <sup>+0.04</sup> <sub>-0.04</sub>	1.33 <sup>+0.02</sup> <sub>-0.02</sub>	7.77 <sup>+1.16</sup> <sub>-1.22</sub>	1.83 <sup>+0.11</sup> <sub>-0.11</sub>
5095850	6647 <sup>+66</sup> <sub>-72</sub>	3.883 <sup>+0.015</sup> <sub>-0.016</sub>	0.09 <sup>+0.10</sup> <sub>-0.10</sub>	1.60 <sup>+0.12</sup> <sub>-0.04</sub>	2.42 <sup>+0.07</sup> <sub>-0.06</sub>	1.84 <sup>+0.20</sup> <sub>-0.42</sub>	10.29 <sup>+0.78</sup> <sub>-0.73</sub>
5511081	5843 <sup>+50</sup> <sub>-61</sub>	4.013 <sup>+0.024</sup> <sub>-0.023</sub>	0.02 <sup>+0.07</sup> <sub>-0.02</sub>	1.10 <sup>+0.06</sup> <sub>-0.02</sub>	1.73 <sup>+0.05</sup> <sub>-0.06</sub>	7.04 <sup>+0.62</sup> <sub>-0.92</sub>	3.13 <sup>+0.21</sup> <sub>-0.24</sub>
5512589	5733 <sup>+51</sup> <sub>-57</sub>	4.055 <sup>+0.006</sup> <sub>-0.006</sub>	0.20 <sup>+0.02</sup> <sub>-0.07</sub>	1.10 <sup>+0.04</sup> <sub>-0.02</sub>	1.64 <sup>+0.02</sup> <sub>-0.01</sub>	7.80 <sup>+0.58</sup> <sub>-0.72</sub>	2.62 <sup>+0.13</sup> <sub>-0.13</sub>
5636956	6243 <sup>+50</sup> <sub>-72</sub>	3.969 <sup>+0.008</sup> <sub>-0.008</sub>	0.20 <sup>+0.08</sup> <sub>-0.10</sub>	1.36 <sup>+0.04</sup> <sub>-0.02</sub>	2.01 <sup>+0.03</sup> <sub>-0.02</sub>	3.25 <sup>+0.45</sup> <sub>-0.26</sub>	5.65 <sup>+0.31</sup> <sub>-0.37</sub>
5686856	5882 <sup>+63</sup> <sub>-50</sub>	3.998 <sup>+0.008</sup> <sub>-0.007</sub>	0.09 <sup>+0.04</sup> <sub>-0.06</sub>	1.16 <sup>+0.04</sup> <sub>-0.04</sub>	1.79 <sup>+0.02</sup> <sub>-0.03</sub>	6.26 <sup>+0.53</sup> <sub>-0.53</sub>	3.46 <sup>+0.17</sup> <sub>-0.15</sub>
5689219	6373 <sup>+51</sup> <sub>-60</sub>	4.039 <sup>+0.009</sup> <sub>-0.008</sub>	-0.29 <sup>+0.07</sup> <sub>-0.04</sub>	1.16 <sup>+0.02</sup> <sub>-0.06</sub>	1.71 <sup>+0.02</sup> <sub>-0.03</sub>	4.64 <sup>+0.85</sup> <sub>-0.41</sub>	4.06 <sup>+0.17</sup> <sub>-0.20</sub>
5780885	5987 <sup>+54</sup> <sub>-69</sub>	3.966 <sup>+0.015</sup> <sub>-0.014</sub>	0.20 <sup>+0.10</sup> <sub>-0.07</sub>	1.26 <sup>+0.02</sup> <sub>-0.04</sub>	1.93 <sup>+0.04</sup> <sub>-0.04</sub>	4.84 <sup>+0.40</sup> <sub>-0.38</sub>	4.31 <sup>+0.25</sup> <sub>-0.28</sub>
5961597	6338 <sup>+38</sup> <sub>-62</sub>	4.034 <sup>+0.005</sup> <sub>-0.006</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.46 <sup>+0.02</sup> <sub>-0.04</sub>	1.92 <sup>+0.02</sup> <sub>-0.02</sub>	2.32 <sup>+0.22</sup> <sub>-0.18</sub>	5.29 <sup>+0.21</sup> <sub>-0.16</sub>
6196457	5865 <sup>+54</sup> <sub>-51</sub>	4.055 <sup>+0.009</sup> <sub>-0.009</sub>	0.20 <sup>+0.10</sup> <sub>-0.08</sub>	1.16 <sup>+0.02</sup> <sub>-0.02</sub>	1.69 <sup>+0.02</sup> <sub>-0.02</sub>	6.08 <sup>+0.81</sup> <sub>-0.39</sub>	3.03 <sup>+0.22</sup> <sub>-0.16</sub>
6268648	6033 <sup>+67</sup> <sub>-60</sub>	4.198 <sup>+0.012</sup> <sub>-0.012</sub>	-0.25 <sup>+0.10</sup> <sub>-0.10</sub>	1.00 <sup>+0.04</sup> <sub>-0.04</sub>	1.33 <sup>+0.02</sup> <sub>-0.02</sub>	7.46 <sup>+0.97</sup> <sub>-1.02</sub>	2.10 <sup>+0.13</sup> <sub>-0.13</sub>
6521045	5816 <sup>+50</sup> <sub>-55</sub>	4.127 <sup>+0.006</sup> <sub>-0.007</sub>	0.19 <sup>+0.01</sup> <sub>-0.09</sub>	1.10 <sup>+0.04</sup> <sub>-0.02</sub>	1.51 <sup>+0.02</sup> <sub>-0.02</sub>	7.18 <sup>+0.85</sup> <sub>-0.90</sub>	2.36 <sup>+0.11</sup> <sub>-0.13</sub>
6593461	5660 <sup>+48</sup> <sub>-53</sub>	4.216 <sup>+0.011</sup> <sub>-0.012</sub>	0.18 <sup>+0.01</sup> <sub>-0.01</sub>	1.04 <sup>+0.02</sup> <sub>-0.02</sub>	1.32 <sup>+0.02</sup> <sub>-0.02</sub>	8.86 <sup>+1.38</sup> <sub>-1.33</sub>	1.64 <sup>+0.10</sup> <sub>-0.09</sub>

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Table 3 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$M$	$R$	Age	$L$
KIC	(K)	(dex)	(dex)	( $M_{\odot}$ )	( $R_{\odot}$ )	(Gyr)	( $L_{\odot}$ )
6605673	6010 <sup>+58</sup> <sub>-61</sub>	4.051 <sup>+0.007</sup> <sub>-0.007</sub>	-0.24 <sup>+0.03</sup> <sub>-0.09</sub>	1.04 <sup>+0.04</sup> <sub>-0.02</sub>	1.61 <sup>+0.02</sup> <sub>-0.02</sub>	7.20 <sup>+0.70</sup> <sub>-0.96</sub>	3.03 <sup>0.17</sup> <sub>-0.17</sub>
6689943	5947 <sup>+51</sup> <sub>-53</sub>	4.164 <sup>+0.008</sup> <sub>-0.010</sub>	0.10 <sup>+0.01</sup> <sub>-0.01</sub>	1.12 <sup>+0.04</sup> <sub>-0.02</sub>	1.46 <sup>+0.02</sup> <sub>-0.02</sub>	6.01 <sup>+0.75</sup> <sub>-0.79</sub>	2.42 <sup>0.11</sup> <sub>-0.11</sub>
6853020	6171 <sup>+62</sup> <sub>-64</sub>	3.956 <sup>+0.012</sup> <sub>-0.012</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.30 <sup>+0.04</sup> <sub>-0.02</sub>	2.00 <sup>+0.04</sup> <sub>-0.04</sub>	3.90 <sup>+0.31</sup> <sub>-0.43</sub>	5.20 <sup>0.29</sup> <sub>-0.29</sub>
7133688	6314 <sup>+54</sup> <sub>-73</sub>	4.013 <sup>+0.016</sup> <sub>-0.015</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.34 <sup>+0.08</sup> <sub>-0.04</sub>	1.90 <sup>+0.05</sup> <sub>-0.05</sub>	3.33 <sup>+0.46</sup> <sub>-0.83</sub>	5.16 <sup>0.36</sup> <sub>-0.42</sub>
7383120	6106 <sup>+50</sup> <sub>-76</sub>	4.196 <sup>+0.011</sup> <sub>-0.012</sub>	-0.04 <sup>+0.10</sup> <sub>-0.10</sub>	1.08 <sup>+0.04</sup> <sub>-0.02</sub>	1.38 <sup>+0.03</sup> <sub>-0.02</sub>	6.08 <sup>+0.87</sup> <sub>-0.87</sub>	2.24 <sup>0.12</sup> <sub>-0.13</sub>
7429287	5625 <sup>+55</sup> <sub>-79</sub>	4.059 <sup>+0.008</sup> <sub>-0.007</sub>	-0.29 <sup>+0.10</sup> <sub>-0.09</sub>	0.88 <sup>+0.02</sup> <sub>-0.04</sub>	1.45 <sup>+0.02</sup> <sub>-0.02</sub>	14.03 <sup>+0.37</sup> <sub>-1.18</sub>	1.89 <sup>0.11</sup> <sub>-0.10</sub>
7591963	5888 <sup>+69</sup> <sub>-53</sub>	3.987 <sup>+0.008</sup> <sub>-0.008</sub>	0.12 <sup>+0.08</sup> <sub>-0.03</sub>	1.18 <sup>+0.02</sup> <sub>-0.04</sub>	1.83 <sup>+0.03</sup> <sub>-0.02</sub>	5.85 <sup>+0.53</sup> <sub>-0.40</sub>	3.62 <sup>0.22</sup> <sub>-0.16</sub>
7680114	5815 <sup>+61</sup> <sub>-55</sub>	4.182 <sup>+0.007</sup> <sub>-0.007</sub>	0.19 <sup>+0.10</sup> <sub>-0.10</sub>	1.10 <sup>+0.02</sup> <sub>-0.04</sub>	1.41 <sup>+0.02</sup> <sub>-0.02</sub>	7.21 <sup>+0.99</sup> <sub>-1.10</sub>	2.05 <sup>0.12</sup> <sub>-0.12</sub>
7833440	6050 <sup>+62</sup> <sub>-61</sub>	4.034 <sup>+0.009</sup> <sub>-0.009</sub>	-0.29 <sup>+0.08</sup> <sub>-0.04</sub>	1.06 <sup>+0.04</sup> <sub>-0.02</sub>	1.65 <sup>+0.02</sup> <sub>-0.02</sub>	6.70 <sup>+0.65</sup> <sub>-0.85</sub>	3.29 <sup>0.21</sup> <sub>-0.19</sub>
7910848	5959 <sup>+58</sup> <sub>-56</sub>	4.106 <sup>+0.010</sup> <sub>-0.010</sub>	0.12 <sup>+0.08</sup> <sub>-0.02</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.58 <sup>+0.02</sup> <sub>-0.02</sub>	5.84 <sup>+0.89</sup> <sub>-0.51</sub>	2.84 <sup>0.14</sup> <sub>-0.15</sub>
8012842	5713 <sup>+80</sup> <sub>-48</sub>	4.250 <sup>+0.011</sup> <sub>-0.011</sub>	0.18 <sup>+0.10</sup> <sub>-0.10</sub>	1.06 <sup>+0.02</sup> <sub>-0.02</sub>	1.29 <sup>+0.02</sup> <sub>-0.02</sub>	7.60 <sup>+1.13</sup> <sub>-1.08</sub>	1.59 <sup>0.11</sup> <sub>-0.09</sub>
8298626	5980 <sup>+51</sup> <sub>-78</sub>	4.224 <sup>+0.009</sup> <sub>-0.009</sub>	-0.02 <sup>+0.10</sup> <sub>-0.10</sub>	1.08 <sup>+0.02</sup> <sub>-0.04</sub>	1.33 <sup>+0.02</sup> <sub>-0.02</sub>	6.40 <sup>+0.96</sup> <sub>-1.06</sub>	2.02 <sup>0.12</sup> <sub>-0.11</sub>
8349582	5602 <sup>+52</sup> <sub>-52</sub>	4.168 <sup>+0.009</sup> <sub>-0.009</sub>	0.19 <sup>+0.14</sup> <sub>-0.10</sub>	1.04 <sup>+0.04</sup> <sub>-0.04</sub>	1.40 <sup>+0.02</sup> <sub>-0.02</sub>	9.70 <sup>+1.10</sup> <sub>-1.68</sub>	1.73 <sup>0.09</sup> <sub>-0.10</sub>
8367710	6151 <sup>+70</sup> <sub>-102</sub>	3.969 <sup>+0.010</sup> <sub>-0.009</sub>	0.02 <sup>+0.08</sup> <sub>-0.10</sub>	1.24 <sup>+0.04</sup> <sub>-0.04</sub>	1.92 <sup>+0.03</sup> <sub>-0.03</sub>	4.41 <sup>+0.70</sup> <sub>-0.46</sub>	4.75 <sup>+0.30</sup> <sub>-0.40</sub>
8391021	6119 <sup>+51</sup> <sub>-69</sub>	4.150 <sup>+0.008</sup> <sub>-0.008</sub>	-0.27 <sup>+0.03</sup> <sub>-0.09</sub>	1.06 <sup>+0.04</sup> <sub>-0.04</sub>	1.44 <sup>+0.02</sup> <sub>-0.02</sub>	6.08 <sup>+1.15</sup> <sub>-0.62</sub>	2.60 <sup>+0.14</sup> <sub>-0.16</sub>
8420801	6169 <sup>+57</sup> <sub>-67</sub>	4.069 <sup>+0.013</sup> <sub>-0.013</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.24 <sup>+0.02</sup> <sub>-0.04</sub>	1.71 <sup>+0.03</sup> <sub>-0.03</sub>	4.47 <sup>+0.57</sup> <sub>-0.43</sub>	3.78 <sup>0.23</sup> <sub>-0.22</sub>
8491374	6212 <sup>+56</sup> <sub>-66</sub>	3.978 <sup>+0.017</sup> <sub>-0.017</sub>	0.01 <sup>+0.10</sup> <sub>-0.10</sub>	1.26 <sup>+0.04</sup> <sub>-0.02</sub>	1.92 <sup>+0.05</sup> <sub>-0.05</sub>	4.11 <sup>+0.36</sup> <sub>-0.32</sub>	4.90 <sup>0.31</sup> <sub>-0.34</sub>
8493800	5917 <sup>+59</sup> <sub>-49</sub>	4.184 <sup>+0.009</sup> <sub>-0.008</sub>	-0.02 <sup>+0.10</sup> <sub>-0.01</sub>	1.10 <sup>+0.02</sup> <sub>-0.04</sub>	1.40 <sup>+0.02</sup> <sub>-0.02</sub>	6.32 <sup>+1.17</sup> <sub>-0.61</sub>	2.19 <sup>0.10</sup> <sub>-0.11</sub>
8494142	5968 <sup>+49</sup> <sub>-67</sub>	4.006 <sup>+0.007</sup> <sub>-0.007</sub>	-0.01 <sup>+0.02</sup> <sub>-0.08</sub>	1.14 <sup>+0.04</sup> <sub>-0.04</sub>	1.76 <sup>+0.02</sup> <sub>-0.02</sub>	6.07 <sup>+0.63</sup> <sub>-0.82</sub>	3.55 <sup>+0.18</sup> <sub>-0.20</sub>
8554498	5849 <sup>+62</sup> <sub>-52</sub>	4.012 <sup>+0.008</sup> <sub>-0.008</sub>	0.14 <sup>+0.06</sup> <sub>-0.02</sub>	1.18 <sup>+0.02</sup> <sub>-0.02</sub>	1.78 <sup>+0.02</sup> <sub>-0.02</sub>	6.10 <sup>+0.58</sup> <sub>-0.57</sub>	3.32 <sup>0.18</sup> <sub>-0.15</sub>
8776961	5832 <sup>+52</sup> <sub>-61</sub>	4.030 <sup>+0.008</sup> <sub>-0.008</sub>	0.09 <sup>+0.03</sup> <sub>-0.08</sub>	1.14 <sup>+0.03</sup> <sub>-0.03</sub>	1.70 <sup>+0.03</sup> <sub>-0.03</sub>	6.96 <sup>+0.70</sup> <sub>-0.97</sub>	3.00 <sup>0.16</sup> <sub>-0.15</sub>
8915084	5828 <sup>+49</sup> <sub>-58</sub>	4.146 <sup>+0.009</sup> <sub>-0.009</sub>	0.19 <sup>+0.10</sup> <sub>-0.10</sub>	1.10 <sup>+0.04</sup> <sub>-0.02</sub>	1.48 <sup>+0.02</sup> <sub>-0.02</sub>	7.04 <sup>+0.88</sup> <sub>-0.78</sub>	2.27 <sup>0.11</sup> <sub>-0.14</sub>
8938364	5639 <sup>+59</sup> <sub>-57</sub>	4.165 <sup>+0.006</sup> <sub>-0.007</sub>	-0.11 <sup>+0.01</sup> <sub>-0.11</sub>	0.92 <sup>+0.02</sup> <sub>-0.04</sub>	1.31 <sup>+0.02</sup> <sub>-0.02</sub>	13.27 <sup>+1.38</sup> <sub>-1.20</sub>	1.57 <sup>0.09</sup> <sub>-0.09</sub>
8956017	6230 <sup>+61</sup> <sub>-65</sub>	4.041 <sup>+0.012</sup> <sub>-0.012</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.28 <sup>+0.04</sup> <sub>-0.04</sub>	1.79 <sup>+0.04</sup> <sub>-0.03</sub>	3.93 <sup>+0.50</sup> <sub>-0.47</sub>	4.36 <sup>0.31</sup> <sub>-0.27</sub>
8981766	6206 <sup>+57</sup> <sub>-69</sub>	4.056 <sup>+0.008</sup> <sub>-0.009</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.30 <sup>+0.12</sup> <sub>-0.04</sub>	1.79 <sup>+0.06</sup> <sub>-0.04</sub>	3.73 <sup>+0.60</sup> <sub>-1.20</sub>	4.27 <sup>0.40</sup> <sub>-0.30</sub>
9005973	5824 <sup>+63</sup> <sub>-56</sub>	4.160 <sup>+0.013</sup> <sub>-0.012</sub>	-0.01 <sup>+0.01</sup> <sub>-0.01</sub>	1.04 <sup>+0.04</sup> <sub>-0.02</sub>	1.41 <sup>+0.02</sup> <sub>-0.03</sub>	8.02 <sup>+1.40</sup> <sub>-1.04</sub>	2.07 <sup>0.13</sup> <sub>-0.13</sub>
9446628	6147 <sup>+67</sup> <sub>-67</sub>	3.964 <sup>+0.018</sup> <sub>-0.018</sub>	-0.08 <sup>+0.08</sup> <sub>-0.05</sub>	1.20 <sup>+0.04</sup> <sub>-0.04</sub>	1.90 <sup>+0.05</sup> <sub>-0.05</sub>	4.83 <sup>+0.54</sup> <sub>-0.52</sub>	4.61 <sup>0.38</sup> <sub>-0.34</sub>
9451706	5936 <sup>+63</sup> <sub>-46</sub>	4.252 <sup>+0.008</sup> <sub>-0.008</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.12 <sup>+0.02</sup> <sub>-0.02</sub>	1.32 <sup>+0.02</sup> <sub>-0.02</sub>	5.90 <sup>+0.67</sup> <sub>-0.79</sub>	1.95 <sup>0.10</sup> <sub>-0.09</sub>
9451741	5667 <sup>+83</sup> <sub>-47</sub>	4.243 <sup>+0.009</sup> <sub>-0.010</sub>	0.18 <sup>+0.01</sup> <sub>-0.01</sub>	1.04 <sup>+0.04</sup> <sub>-0.02</sub>	1.28 <sup>+0.02</sup> <sub>-0.02</sub>	8.09 <sup>+1.51</sup> <sub>-0.92</sub>	1.55 <sup>0.09</sup> <sub>-0.09</sub>
9697131	6161 <sup>+56</sup> <sub>-70</sub>	4.005 <sup>+0.010</sup> <sub>-0.009</sub>	0.0 <sup>+0.10</sup> <sub>-0.10</sub>	1.22 <sup>+0.04</sup> <sub>-0.04</sub>	1.83 <sup>+0.03</sup> <sub>-0.03</sub>	4.61 <sup>+0.48</sup> <sub>-0.38</sub>	4.32 <sup>0.23</sup> <sub>-0.28</sub>
9700430	5888 <sup>+59</sup> <sub>-57</sub>	4.147 <sup>+0.009</sup> <sub>-0.010</sub>	0.19 <sup>+0.01</sup> <sub>-0.10</sub>	1.12 <sup>+0.04</sup> <sub>-0.02</sub>	1.49 <sup>+0.02</sup> <sub>-0.02</sub>	6.43 <sup>+0.81</sup> <sub>-0.59</sub>	2.40 <sup>0.12</sup> <sub>-0.12</sub>
9754284	5955 <sup>+50</sup> <sub>-56</sub>	4.111 <sup>+0.01</sup> <sub>-0.011</sub>	0.10 <sup>+0.01</sup> <sub>-0.01</sub>	1.14 <sup>+0.02</sup> <sub>-0.04</sub>	1.56 <sup>+0.02</sup> <sub>-0.02</sub>	5.99 <sup>+1.04</sup> <sub>-0.59</sub>	2.75 <sup>0.14</sup> <sub>-0.13</sub>
9872292	6124 <sup>+84</sup> <sub>-56</sub>	4.030 <sup>+0.011</sup> <sub>-0.010</sub>	0.00 <sup>+0.10</sup> <sub>-0.10</sub>	1.18 <sup>+0.02</sup> <sub>-0.02</sub>	1.74 <sup>+0.02</sup> <sub>-0.02</sub>	5.17 <sup>+0.52</sup> <sub>-0.37</sub>	3.83 <sup>0.28</sup> <sub>-0.17</sub>
9962623	5687 <sup>+58</sup> <sub>-59</sub>	4.148 <sup>+0.016</sup> <sub>-0.015</sub>	-0.01 <sup>+0.01</sup> <sub>-0.01</sub>	0.98 <sup>+0.04</sup> <sub>-0.02</sub>	1.39 <sup>+0.03</sup> <sub>-0.02</sub>	10.45 <sup>+1.20</sup> <sub>-1.08</sub>	1.82 <sup>0.11</sup> <sub>-0.11</sub>
10019747	5591 <sup>+48</sup> <sub>-63</sub>	4.042 <sup>+0.009</sup> <sub>-0.009</sub>	0.23 <sup>+0.12</sup> <sub>-0.01</sub>	1.10 <sup>+0.04</sup> <sub>-0.02</sub>	1.67 <sup>+0.03</sup> <sub>-0.03</sub>	8.43 <sup>+0.72</sup> <sub>-1.15</sub>	2.44 <sup>0.12</sup> <sub>-0.14</sub>

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Table 3 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$M$	$R$	Age	$L$
KIC	(K)	(dex)	(dex)	( $M_{\odot}$ )	( $R_{\odot}$ )	(Gyr)	( $L_{\odot}$ )
10322381	6063 <sup>+57</sup> <sub>-60</sub>	4.187 <sup>+0.019</sup> <sub>-0.019</sub>	-0.25 <sup>+0.01</sup> <sub>-0.10</sub>	1.02 <sup>+0.04</sup> <sub>-0.04</sub>	1.35 <sup>+0.04</sup> <sub>-0.04</sub>	7.00 <sup>+1.18</sup> <sub>-0.90</sub>	2.22 <sup>+0.17</sup> <sub>-0.16</sub>
10351059	6249 <sup>+65</sup> <sub>-66</sub>	4.061 <sup>+0.010</sup> <sub>-0.009</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.32 <sup>+0.12</sup> <sub>-0.04</sub>	1.79 <sup>+0.05</sup> <sub>-0.03</sub>	3.48 <sup>+0.50</sup> <sub>-1.07</sub>	4.44 <sup>+0.31</sup> <sub>-0.30</sub>
10398597	6167 <sup>+59</sup> <sub>-69</sub>	3.981 <sup>+0.013</sup> <sub>-0.012</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.32 <sup>+0.04</sup> <sub>-0.06</sub>	1.94 <sup>+0.04</sup> <sub>-0.04</sub>	3.90 <sup>+0.37</sup> <sub>-0.44</sub>	4.90 <sup>+0.32</sup> <sub>-0.30</sub>
10586004	5782 <sup>+52</sup> <sub>-61</sub>	4.079 <sup>+0.008</sup> <sub>-0.008</sub>	0.20 <sup>+0.10</sup> <sub>-0.01</sub>	1.12 <sup>+0.04</sup> <sub>-0.02</sub>	1.61 <sup>+0.02</sup> <sub>-0.02</sub>	7.18 <sup>+0.86</sup> <sub>-0.83</sub>	2.61 <sup>+0.15</sup> <sub>-0.14</sub>
10732098	5772 <sup>+53</sup> <sub>-53</sub>	4.000 <sup>+0.008</sup> <sub>-0.007</sub>	0.13 <sup>+0.07</sup> <sub>-0.03</sub>	1.14 <sup>+0.02</sup> <sub>-0.04</sub>	1.77 <sup>+0.02</sup> <sub>-0.02</sub>	7.10 <sup>+0.75</sup> <sub>-0.87</sub>	3.13 <sup>+0.15</sup> <sub>-0.15</sub>
10875245	5701 <sup>+66</sup> <sub>-53</sub>	4.189 <sup>+0.016</sup> <sub>-0.015</sub>	0.19 <sup>+0.14</sup> <sub>-0.01</sub>	1.08 <sup>+0.02</sup> <sub>-0.04</sub>	1.39 <sup>+0.03</sup> <sub>-0.03</sub>	7.79 <sup>+1.11</sup> <sub>-0.65</sub>	1.84 <sup>+0.11</sup> <sub>-0.12</sub>
11188219	5800 <sup>+47</sup> <sub>-50</sub>	4.239 <sup>+0.011</sup> <sub>-0.009</sub>	0.18 <sup>+0.02</sup> <sub>-0.01</sub>	1.10 <sup>+0.02</sup> <sub>-0.04</sub>	1.32 <sup>+0.02</sup> <sub>-0.02</sub>	6.81 <sup>+0.68</sup> <sub>-0.73</sub>	1.78 <sup>+0.08</sup> <sub>-0.11</sub>
11244118	5618 <sup>+50</sup> <sub>-60</sub>	4.087 <sup>+0.006</sup> <sub>-0.006</sub>	0.34 <sup>+0.10</sup> <sub>-0.13</sub>	1.10 <sup>+0.04</sup> <sub>-0.04</sub>	1.58 <sup>+0.02</sup> <sub>-0.02</sub>	8.06 <sup>+0.95</sup> <sub>-1.17</sub>	2.24 <sup>+0.13</sup> <sub>-0.14</sub>
11506988	6216 <sup>+65</sup> <sub>-64</sub>	3.979 <sup>+0.009</sup> <sub>-0.009</sub>	-0.20 <sup>+0.10</sup> <sub>-0.1</sub>	1.16 <sup>+0.04</sup> <sub>-0.04</sub>	1.83 <sup>+0.03</sup> <sub>-0.03</sub>	4.97 <sup>+0.45</sup> <sub>-0.38</sub>	4.49 <sup>+0.26</sup> <sub>-0.25</sub>
11507653	5854 <sup>+51</sup> <sub>-59</sub>	4.081 <sup>+0.015</sup> <sub>-0.015</sub>	0.20 <sup>+0.02</sup> <sub>-0.01</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.62 <sup>+0.04</sup> <sub>-0.04</sub>	6.41 <sup>+1.03</sup> <sub>-0.65</sub>	2.79 <sup>+0.16</sup> <sub>-0.17</sub>
11611414	6039 <sup>+55</sup> <sub>-59</sub>	4.055 <sup>+0.018</sup> <sub>-0.017</sub>	-0.02 <sup>+0.02</sup> <sub>-0.07</sub>	1.14 <sup>+0.04</sup> <sub>-0.04</sub>	1.67 <sup>+0.04</sup> <sub>-0.04</sub>	5.84 <sup>+0.72</sup> <sub>-0.72</sub>	3.33 <sup>+0.19</sup> <sub>-0.22</sub>
11971746	5879 <sup>+45</sup> <sub>-79</sub>	4.228 <sup>+0.011</sup> <sub>-0.011</sub>	0.21 <sup>+0.08</sup> <sub>-0.02</sub>	1.13 <sup>+0.02</sup> <sub>-0.05</sub>	1.35 <sup>+0.02</sup> <sub>-0.02</sub>	6.44 <sup>+0.67</sup> <sub>-0.67</sub>	1.94 <sup>+0.10</sup> <sub>-0.10</sub>
12265063	5963 <sup>+51</sup> <sub>-66</sub>	4.058 <sup>+0.012</sup> <sub>-0.011</sub>	-0.02 <sup>+0.03</sup> <sub>-0.07</sub>	1.12 <sup>+0.04</sup> <sub>-0.04</sub>	1.64 <sup>+0.03</sup> <sub>-0.03</sub>	6.45 <sup>+0.73</sup> <sub>-0.76</sub>	3.05 <sup>+0.18</sup> <sub>-0.18</sub>
<i>MS stars</i>							
3241581	5580 <sup>+53</sup> <sub>-54</sub>	4.386 <sup>+0.007</sup> <sub>-0.008</sub>	0.34 <sup>+0.02</sup> <sub>-0.15</sub>	1.02 <sup>+0.04</sup> <sub>-0.04</sub>	1.08 <sup>+0.02</sup> <sub>-0.01</sub>	6.39 <sup>+1.93</sup> <sub>-1.34</sub>	1.02 <sup>+0.05</sup> <sub>-0.06</sub>
4349452	6159 <sup>+67</sup> <sub>-58</sub>	4.274 <sup>+0.005</sup> <sub>-0.005</sub>	-0.01 <sup>+0.01</sup> <sub>-0.010</sub>	1.14 <sup>+0.02</sup> <sub>-0.04</sub>	1.29 <sup>+0.01</sup> <sub>-0.01</sub>	4.10 <sup>+0.85</sup> <sub>-0.85</sub>	2.15 <sup>+0.13</sup> <sub>-0.09</sub>
5088536	5818 <sup>+50</sup> <sub>-49</sub>	4.302 <sup>+0.011</sup> <sub>-0.008</sub>	-0.11 <sup>+0.05</sup> <sub>-0.04</sub>	0.94 <sup>+0.04</sup> <sub>-0.02</sub>	1.15 <sup>+0.01</sup> <sub>-0.02</sub>	9.68 <sup>+0.97</sup> <sub>-1.17</sub>	1.34 <sup>+0.08</sup> <sub>-0.06</sub>
5253542	5649 <sup>+73</sup> <sub>-64</sub>	4.313 <sup>+0.010</sup> <sub>-0.009</sub>	0.19 <sup>+0.15</sup> <sub>-0.10</sub>	1.02 <sup>+0.04</sup> <sub>-0.04</sub>	1.18 <sup>+0.02</sup> <sub>-0.02</sub>	8.26 <sup>+1.48</sup> <sub>-1.70</sub>	1.27 <sup>+0.09</sup> <sub>-0.08</sub>
6603624	5512 <sup>+47</sup> <sub>-46</sub>	4.319 <sup>+0.006</sup> <sub>-0.006</sub>	0.32 <sup>+0.10</sup> <sub>-0.10</sub>	1.00 <sup>+0.02</sup> <sub>-0.02</sub>	1.15 <sup>+0.01</sup> <sub>-0.01</sub>	9.93 <sup>+1.16</sup> <sub>-1.16</sub>	1.09 <sup>+0.05</sup> <sub>-0.04</sub>
8394589	5976 <sup>+74</sup> <sub>-33</sub>	4.306 <sup>+0.010</sup> <sub>-0.009</sub>	-0.32 <sup>+0.11</sup> <sub>-0.10</sub>	0.94 <sup>+0.04</sup> <sub>-0.02</sub>	1.14 <sup>+0.01</sup> <sub>-0.01</sub>	8.53 <sup>+1.13</sup> <sub>-1.89</sub>	1.48 <sup>+0.10</sup> <sub>-0.06</sub>
9116461	6217 <sup>+56</sup> <sub>-58</sub>	4.314 <sup>+0.011</sup> <sub>-0.011</sub>	0.01 <sup>+0.10</sup> <sub>-0.1</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.24 <sup>+0.02</sup> <sub>-0.02</sub>	3.13 <sup>+0.87</sup> <sub>-0.73</sub>	2.07 <sup>+0.12</sup> <sub>-0.10</sub>
10079226	5869 <sup>+50</sup> <sub>-80</sub>	4.369 <sup>+0.008</sup> <sub>-0.008</sub>	0.21 <sup>+0.01</sup> <sub>-0.090</sub>	1.08 <sup>+0.04</sup> <sub>-0.02</sub>	1.13 <sup>+0.01</sup> <sub>-0.01</sub>	3.99 <sup>+1.17</sup> <sub>-0.99</sub>	1.37 <sup>+0.07</sup> <sub>-0.08</sub>
11133306	5894 <sup>+80</sup> <sub>-70</sub>	4.315 <sup>+0.010</sup> <sub>-0.009</sub>	-0.01 <sup>+0.01</sup> <sub>-0.01</sub>	1.04 <sup>+0.02</sup> <sub>-0.04</sub>	1.18 <sup>+0.02</sup> <sub>-0.02</sub>	6.20 <sup>+2.02</sup> <sub>-1.33</sub>	1.52 <sup>+0.09</sup> <sub>-0.10</sub>
12068975	5929 <sup>+69</sup> <sub>-33</sub>	4.298 <sup>+0.014</sup> <sub>-0.010</sub>	-0.32 <sup>+0.10</sup> <sub>-0.01</sub>	0.92 <sup>+0.04</sup> <sub>-0.02</sub>	1.14 <sup>+0.02</sup> <sub>-0.02</sub>	9.45 <sup>+1.22</sup> <sub>-1.51</sub>	1.43 <sup>+0.09</sup> <sub>-0.07</sub>
<i>Giant stars</i>							
2010607	6117 <sup>+64</sup> <sub>-64</sub>	3.819 <sup>+0.018</sup> <sub>-0.017</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.42 <sup>+0.04</sup> <sub>-0.04</sub>	2.44 <sup>+0.08</sup> <sub>-0.07</sub>	2.99 <sup>+0.21</sup> <sub>-0.26</sub>	7.58 <sup>+0.49</sup> <sub>-0.66</sub>
3344897	6234 <sup>+69</sup> <sub>-63</sub>	3.870 <sup>+0.009</sup> <sub>-0.008</sub>	0.010 <sup>+0.10</sup> <sub>-0.010</sub>	1.36 <sup>+0.04</sup> <sub>-0.04</sub>	2.25 <sup>+0.03</sup> <sub>-0.03</sub>	3.26 <sup>+0.23</sup> <sub>-0.23</sub>	6.80 <sup>+0.45</sup> <sub>-0.37</sub>
3438633	6076 <sup>+62</sup> <sub>-57</sub>	3.950 <sup>+0.013</sup> <sub>-0.013</sub>	-0.20 <sup>+0.10</sup> <sub>-0.01</sub>	1.14 <sup>+0.04</sup> <sub>-0.02</sub>	1.88 <sup>+0.04</sup> <sub>-0.04</sub>	5.41 <sup>+0.47</sup> <sub>-0.43</sub>	4.35 <sup>+0.26</sup> <sub>-0.23</sub>
3456181	6234 <sup>+61</sup> <sub>-59</sub>	3.926 <sup>+0.008</sup> <sub>-0.007</sub>	0.01 <sup>+0.10</sup> <sub>-0.01</sub>	1.30 <sup>+0.04</sup> <sub>-0.02</sub>	2.07 <sup>+0.02</sup> <sub>-0.02</sub>	3.72 <sup>+0.29</sup> <sub>-0.25</sub>	5.82 <sup>+0.28</sup> <sub>-0.3</sub>
3942719	5665 <sup>+53</sup> <sub>-61</sub>	3.833 <sup>+0.017</sup> <sub>-0.019</sub>	-0.25 <sup>+0.02</sup> <sub>-0.09</sub>	1.08 <sup>+0.04</sup> <sub>-0.04</sub>	2.09 <sup>+0.07</sup> <sub>-0.07</sub>	6.38 <sup>+0.86</sup> <sub>-0.43</sub>	4.04 <sup>+0.34</sup> <sub>-0.32</sub>
4049576	5810 <sup>+55</sup> <sub>-60</sub>	3.903 <sup>+0.015</sup> <sub>-0.015</sub>	-0.17 <sup>+0.03</sup> <sub>-0.09</sub>	1.10 <sup>+0.02</sup> <sub>-0.04</sub>	1.94 <sup>+0.05</sup> <sub>-0.04</sub>	6.65 <sup>+0.51</sup> <sub>-0.42</sub>	3.89 <sup>+0.29</sup> <sub>-0.24</sub>
4143755	5683 <sup>+56</sup> <sub>-58</sub>	4.095 <sup>+0.008</sup> <sub>-0.008</sub>	-0.40 <sup>+0.10</sup> <sub>-0.10</sub>	0.84 <sup>+0.02</sup> <sub>-0.02</sub>	1.37 <sup>+0.02</sup> <sub>-0.02</sub>	14.11 <sup>+1.30</sup> <sub>-1.18</sub>	1.77 <sup>+0.09</sup> <sub>-0.10</sub>
4165030	5678 <sup>+56</sup> <sub>-57</sub>	3.980 <sup>+0.011</sup> <sub>-0.010</sub>	-0.27 <sup>+0.09</sup> <sub>-0.09</sub>	0.94 <sup>+0.02</sup> <sub>-0.02</sub>	1.65 <sup>+0.03</sup> <sub>-0.03</sub>	10.40 <sup>+0.90</sup> <sub>-0.81</sub>	2.54 <sup>+0.16</sup> <sub>-0.14</sub>
4577484	5588 <sup>+54</sup> <sub>-57</sub>	3.861 <sup>+0.013</sup> <sub>-0.013</sub>	0.24 <sup>+0.05</sup> <sub>-0.1</sub>	1.26 <sup>+0.02</sup> <sub>-0.02</sub>	2.19 <sup>+0.05</sup> <sub>-0.05</sub>	5.10 <sup>+0.38</sup> <sub>-0.32</sub>	4.21 <sup>+0.25</sup> <sub>-0.25</sub>
4672403	5764 <sup>+59</sup> <sub>-52</sub>	3.994 <sup>+0.009</sup> <sub>-0.009</sub>	0.20 <sup>+0.09</sup> <sub>-0.06</sub>	1.18 <sup>+0.02</sup> <sub>-0.04</sub>	1.81 <sup>+0.02</sup> <sub>-0.03</sub>	6.44 <sup>+0.51</sup> <sub>-0.40</sub>	3.24 <sup>+0.18</sup> <sub>-0.16</sub>

Continued on next page

Table 3 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$M$	$R$	Age	$L$
KIC	(K)	(dex)	(dex)	( $M_{\odot}$ )	( $R_{\odot}$ )	(Gyr)	( $L_{\odot}$ )
4841753	5993 <sup>+49</sup> <sub>-61</sub>	3.906 <sup>+0.016</sup> <sub>-0.017</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.30 <sup>+0.04</sup> <sub>-0.02</sub>	2.12 <sup>+0.05</sup> <sub>-0.05</sub>	4.14 <sup>+0.29</sup> <sub>-0.24</sub>	5.23 <sup>0.30</sup> <sub>-0.33</sub>
5095159	5298 <sup>+71</sup> <sub>-33</sub>	3.711 <sup>+0.007</sup> <sub>-0.008</sub>	0.100 <sup>+0.10</sup> <sub>-0.10</sub>	1.48 <sup>+0.04</sup> <sub>-0.06</sub>	2.82 <sup>+0.05</sup> <sub>-0.04</sub>	2.71 <sup>+0.27</sup> <sub>-0.25</sub>	5.65 <sup>0.33</sup> <sub>-0.31</sub>
5353186	6038 <sup>+62</sup> <sub>-62</sub>	3.885 <sup>+0.010</sup> <sub>-0.010</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.32 <sup>+0.04</sup> <sub>-0.02</sub>	2.19 <sup>+0.03</sup> <sub>-0.04</sub>	3.89 <sup>+0.23</sup> <sub>-0.26</sub>	5.73 <sup>0.35</sup> <sub>-0.23</sub>
5523099	5507 <sup>+57</sup> <sub>-51</sub>	3.794 <sup>+0.010</sup> <sub>-0.010</sub>	0.050 <sup>+0.04</sup> <sub>-0.08</sub>	1.26 <sup>+0.04</sup> <sub>-0.04</sub>	2.37 <sup>+0.04</sup> <sub>-0.05</sub>	4.57 <sup>+0.29</sup> <sub>-0.27</sub>	4.63 <sup>0.26</sup> <sub>-0.26</sub>
5561278	5973 <sup>+63</sup> <sub>-55</sub>	3.960 <sup>+0.011</sup> <sub>-0.012</sub>	-0.06 <sup>+0.07</sup> <sub>-0.04</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.87 <sup>+0.03</sup> <sub>-0.03</sub>	5.59 <sup>+0.68</sup> <sub>-0.34</sub>	4.01 <sup>0.22</sup> <sub>-0.18</sub>
6064910	6173 <sup>+66</sup> <sub>-60</sub>	3.818 <sup>+0.009</sup> <sub>-0.009</sub>	-0.24 <sup>+0.04</sup> <sub>-0.07</sub>	1.24 <sup>+0.02</sup> <sub>-0.04</sub>	2.27 <sup>+0.03</sup> <sub>-0.04</sub>	4.03 <sup>+0.26</sup> <sub>-0.42</sub>	6.78 <sup>0.41</sup> <sub>-0.39</sub>
6308642	5653 <sup>+61</sup> <sub>-47</sub>	3.797 <sup>+0.010</sup> <sub>-0.007</sub>	-0.13 <sup>+0.03</sup> <sub>-0.07</sub>	1.18 <sup>+0.02</sup> <sub>-0.02</sub>	2.28 <sup>+0.03</sup> <sub>-0.03</sub>	5.03 <sup>+0.31</sup> <sub>-0.27</sub>	4.79 <sup>0.21</sup> <sub>-0.20</sub>
6520835	6030 <sup>+61</sup> <sub>-59</sub>	3.895 <sup>+0.007</sup> <sub>-0.008</sub>	0.00 <sup>+0.10</sup> <sub>-0.1</sub>	1.24 <sup>+0.02</sup> <sub>-0.02</sub>	2.09 <sup>+0.02</sup> <sub>-0.03</sub>	4.63 <sup>+0.32</sup> <sub>-0.30</sub>	5.11 <sup>0.29</sup> <sub>-0.28</sub>
6587236	5916 <sup>+58</sup> <sub>-60</sub>	3.641 <sup>+0.018</sup> <sub>-0.017</sub>	-0.29 <sup>+0.09</sup> <sub>-0.1</sub>	1.42 <sup>+0.04</sup> <sub>-0.06</sub>	2.98 <sup>+0.08</sup> <sub>-0.10</sub>	2.43 <sup>+0.36</sup> <sub>-0.21</sub>	9.83 <sup>0.71</sup> <sub>-0.78</sub>
6592305	6005 <sup>+59</sup> <sub>-65</sub>	3.870 <sup>+0.006</sup> <sub>-0.006</sub>	0.10 <sup>+0.1</sup> <sub>-0.1</sub>	1.32 <sup>+0.04</sup> <sub>-0.04</sub>	2.22 <sup>+0.02</sup> <sub>-0.03</sub>	3.92 <sup>+0.32</sup> <sub>-0.25</sub>	5.83 <sup>0.31</sup> <sub>-0.30</sub>
6688822	5559 <sup>+56</sup> <sub>-53</sub>	3.860 <sup>+0.009</sup> <sub>-0.009</sub>	0.28 <sup>+0.10</sup> <sub>-0.1</sub>	1.28 <sup>+0.02</sup> <sub>-0.02</sub>	2.21 <sup>+0.03</sup> <sub>-0.04</sub>	5.06 <sup>+0.30</sup> <sub>-0.29</sub>	4.18 <sup>0.22</sup> <sub>-0.21</sub>
6693861	5756 <sup>+52</sup> <sub>-61</sub>	3.835 <sup>+0.010</sup> <sub>-0.010</sub>	-0.25 <sup>+0.02</sup> <sub>-0.09</sub>	1.10 <sup>+0.02</sup> <sub>-0.02</sub>	2.10 <sup>+0.03</sup> <sub>-0.04</sub>	6.06 <sup>+0.32</sup> <sub>-0.36</sub>	4.37 <sup>0.23</sup> <sub>-0.26</sub>
6766513	6169 <sup>+56</sup> <sub>-69</sub>	3.910 <sup>+0.011</sup> <sub>-0.011</sub>	-0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.24 <sup>+0.04</sup> <sub>-0.04</sub>	2.06 <sup>+0.04</sup> <sub>-0.04</sub>	4.24 <sup>+0.36</sup> <sub>-0.42</sub>	5.51 <sup>0.35</sup> <sub>-0.40</sub>
6863041	5623 <sup>+53</sup> <sub>-56</sub>	3.814 <sup>+0.011</sup> <sub>-0.010</sub>	0.2 <sup>+0.08</sup> <sub>-0.1</sub>	1.34 <sup>+0.04</sup> <sub>-0.02</sub>	2.38 <sup>+0.05</sup> <sub>-0.04</sub>	4.04 <sup>+0.26</sup> <sub>-0.24</sub>	5.11 <sup>0.25</sup> <sub>-0.27</sub>
7038145	5907 <sup>+60</sup> <sub>-73</sub>	3.820 <sup>+0.006</sup> <sub>-0.008</sub>	0.01 <sup>+0.10</sup> <sub>-0.11</sub>	1.32 <sup>+0.02</sup> <sub>-0.04</sub>	2.34 <sup>+0.03</sup> <sub>-0.03</sub>	3.79 <sup>+0.42</sup> <sub>-0.06</sub>	6.03 <sup>0.29</sup> <sub>-0.38</sub>
7107778	5136 <sup>+61</sup> <sub>-48</sub>	3.649 <sup>+0.009</sup> <sub>-0.009</sub>	0.1 <sup>+0.10</sup> <sub>-0.100</sub>	1.50 <sup>+0.08</sup> <sub>-0.10</sub>	3.04 <sup>+0.08</sup> <sub>-0.09</sub>	2.62 <sup>+0.73</sup> <sub>-0.42</sub>	5.79 <sup>0.48</sup> <sub>-0.50</sub>
7199397	5922 <sup>+56</sup> <sub>-61</sub>	3.757 <sup>+0.008</sup> <sub>-0.007</sub>	-0.1 <sup>+0.10</sup> <sub>-0.10</sub>	1.32 <sup>+0.06</sup> <sub>-0.02</sub>	2.54 <sup>+0.03</sup> <sub>-0.04</sub>	3.34 <sup>+0.17</sup> <sub>-0.14</sub>	7.08 <sup>0.36</sup> <sub>-0.29</sub>
7264595	5671 <sup>+53</sup> <sub>-47</sub>	3.698 <sup>+0.011</sup> <sub>-0.012</sub>	-0.200 <sup>+0.09</sup> <sub>-0.100</sub>	1.34 <sup>+0.04</sup> <sub>-0.04</sub>	2.73 <sup>+0.06</sup> <sub>-0.06</sub>	3.15 <sup>+0.20</sup> <sub>-0.27</sub>	6.83 <sup>0.42</sup> <sub>-0.31</sub>
7282890	6283 <sup>+68</sup> <sub>-73</sub>	3.874 <sup>+0.008</sup> <sub>-0.008</sub>	0.2 <sup>+0.10</sup> <sub>-0.1</sub>	1.48 <sup>+0.03</sup> <sub>-0.03</sub>	2.33 <sup>+0.03</sup> <sub>-0.03</sub>	2.69 <sup>+0.22</sup> <sub>-0.25</sub>	7.57 <sup>0.51</sup> <sub>-0.44</sub>
7386523	5845 <sup>+56</sup> <sub>-61</sub>	3.883 <sup>+0.018</sup> <sub>-0.018</sub>	0.1 <sup>+0.1</sup> <sub>-0.1</sub>	1.26 <sup>+0.04</sup> <sub>-0.04</sub>	2.13 <sup>+0.07</sup> <sub>-0.06</sub>	4.74 <sup>+0.35</sup> <sub>-0.43</sub>	4.69 <sup>0.52</sup> <sub>-0.29</sub>
7880676	6035 <sup>+55</sup> <sub>-64</sub>	3.944 <sup>+0.009</sup> <sub>-0.009</sub>	0.14 <sup>+0.06</sup> <sub>-0.12</sub>	1.26 <sup>+0.04</sup> <sub>-0.04</sub>	1.99 <sup>+0.03</sup> <sub>-0.03</sub>	4.50 <sup>+0.42</sup> <sub>-0.40</sub>	4.76 <sup>0.25</sup> <sub>-0.32</sub>
8016496	5996 <sup>+60</sup> <sub>-57</sub>	3.952 <sup>+0.010</sup> <sub>-0.009</sub>	-0.06 <sup>+0.07</sup> <sub>-0.04</sub>	1.18 <sup>+0.02</sup> <sub>-0.04</sub>	1.90 <sup>+0.03</sup> <sub>-0.03</sub>	5.46 <sup>+0.47</sup> <sub>-0.38</sub>	4.18 <sup>0.22</sup> <sub>-0.21</sub>
8019508	5995 <sup>+63</sup> <sub>-57</sub>	3.767 <sup>+0.017</sup> <sub>-0.018</sub>	0.09 <sup>+0.10</sup> <sub>-0.10</sub>	1.46 <sup>+0.04</sup> <sub>-0.04</sub>	2.61 <sup>+0.09</sup> <sub>-0.07</sub>	2.78 <sup>+0.26</sup> <sub>-0.18</sub>	7.99 <sup>0.55</sup> <sub>-0.55</sub>
8045442	5902 <sup>+62</sup> <sub>-58</sub>	3.669 <sup>+0.010</sup> <sub>-0.008</sub>	0.09 <sup>+0.1</sup> <sub>-0.1</sub>	1.62 <sup>+0.02</sup> <sub>-0.04</sub>	3.08 <sup>+0.05</sup> <sub>-0.04</sub>	1.99 <sup>+0.10</sup> <sub>-0.12</sub>	10.32 <sup>0.57</sup> <sub>-0.51</sub>
8493735	5887 <sup>+58</sup> <sub>-60</sub>	3.737 <sup>+0.014</sup> <sub>-0.01</sub>	-0.1 <sup>+0.1</sup> <sub>-0.1</sub>	1.36 <sup>+0.04</sup> <sub>-0.04</sub>	2.61 <sup>+0.06</sup> <sub>-0.05</sub>	3.18 <sup>+0.17</sup> <sub>-0.26</sub>	7.37 <sup>0.42</sup> <sub>-0.37</sub>
8621637	5676 <sup>+55</sup> <sub>-54</sub>	3.961 <sup>+0.011</sup> <sub>-0.010</sub>	0.16 <sup>+0.06</sup> <sub>-0.06</sub>	1.16 <sup>+0.02</sup> <sub>-0.04</sub>	1.87 <sup>+0.03</sup> <sub>-0.03</sub>	6.80 <sup>+0.67</sup> <sub>-0.55</sub>	3.24 <sup>0.18</sup> <sub>-0.18</sub>
8684730	5923 <sup>+59</sup> <sub>-64</sub>	3.927 <sup>+0.012</sup> <sub>-0.013</sub>	0.10 <sup>+0.10</sup> <sub>-0.10</sub>	1.24 <sup>+0.04</sup> <sub>-0.04</sub>	2.02 <sup>+0.04</sup> <sub>-0.04</sub>	4.94 <sup>+0.38</sup> <sub>-0.48</sub>	4.44 <sup>+0.40</sup> <sub>-0.27</sub>
8802782	5868 <sup>+53</sup> <sub>-60</sub>	3.848 <sup>+0.015</sup> <sub>-0.015</sub>	0.2 <sup>+0.08</sup> <sub>-0.1</sub>	1.34 <sup>+0.04</sup> <sub>-0.02</sub>	2.30 <sup>+0.06</sup> <sub>-0.05</sub>	3.93 <sup>+0.13</sup> <sub>-0.35</sub>	5.58 <sup>0.47</sup> <sub>-0.26</sub>
8817551	5762 <sup>+57</sup> <sub>-54</sub>	3.818 <sup>+0.008</sup> <sub>-0.009</sub>	0.2 <sup>+0.08</sup> <sub>-0.1</sub>	1.36 <sup>+0.04</sup> <sub>-0.02</sub>	2.39 <sup>+0.04</sup> <sub>-0.04</sub>	3.79 <sup>+0.23</sup> <sub>-0.21</sub>	5.70 <sup>0.29</sup> <sub>-0.32</sub>
8868481	5589 <sup>+56</sup> <sub>-56</sub>	3.777 <sup>+0.013</sup> <sub>-0.013</sub>	0.01 <sup>+0.09</sup> <sub>-0.01</sub>	1.30 <sup>+0.04</sup> <sub>-0.02</sub>	2.45 <sup>+0.06</sup> <sub>-0.06</sub>	4.04 <sup>+0.27</sup> <sub>-0.40</sub>	5.31 <sup>0.32</sup> <sub>-0.30</sub>
9335972	5715 <sup>+63</sup> <sub>-53</sub>	3.851 <sup>+0.009</sup> <sub>-0.010</sub>	0.15 <sup>+0.05</sup> <sub>-0.10</sub>	1.26 <sup>+0.04</sup> <sub>-0.04</sub>	2.22 <sup>+0.04</sup> <sub>-0.04</sub>	4.78 <sup>+0.30</sup> <sub>-0.29</sub>	4.74 <sup>0.24</sup> <sub>-0.24</sub>
9592705	6068 <sup>+52</sup> <sub>-58</sub>	3.943 <sup>+0.003</sup> <sub>-0.004</sub>	0.20 <sup>+0.10</sup> <sub>-0.10</sub>	1.30 <sup>+0.02</sup> <sub>-0.02</sub>	2.02 <sup>+0.01</sup> <sub>-0.02</sub>	4.22 <sup>+0.32</sup> <sub>-0.43</sub>	5.00 <sup>+0.23</sup> <sub>-0.24</sub>
9664694	6158 <sup>+57</sup> <sub>-63</sub>	3.808 <sup>+0.011</sup> <sub>-0.011</sub>	0.00 <sup>+0.10</sup> <sub>-0.10</sub>	1.38 <sup>+0.02</sup> <sub>-0.04</sub>	2.43 <sup>+0.04</sup> <sub>-0.04</sub>	3.14 <sup>+0.20</sup> <sub>-0.18</sub>	7.57 <sup>0.42</sup> <sub>-0.40</sub>
9696358	6000 <sup>+55</sup> <sub>-64</sub>	3.915 <sup>+0.030</sup> <sub>-0.030</sub>	0.14 <sup>+0.06</sup> <sub>-0.11</sub>	1.28 <sup>+0.04</sup> <sub>-0.04</sub>	2.07 <sup>+0.09</sup> <sub>-0.09</sub>	4.36 <sup>+0.57</sup> <sub>-0.39</sub>	4.96 <sup>+0.55</sup> <sub>-0.43</sub>
9715099	6139 <sup>+54</sup> <sub>-67</sub>	3.799 <sup>+0.009</sup> <sub>-0.009</sub>	0.10 <sup>+0.1</sup> <sub>-0.1</sub>	1.46 <sup>+0.04</sup> <sub>-0.04</sub>	2.53 <sup>+0.04</sup> <sub>-0.04</sub>	2.74 <sup>+0.24</sup> <sub>-0.15</sub>	8.08 <sup>0.43</sup> <sub>-0.40</sub>

Continued on next page

Table 3 – continued from previous page

Star	$T_{\text{eff}}$	$\log g$	[Fe/H]	$M$	$R$	Age	$L$
KIC	(K)	(dex)	(dex)	( $M_{\odot}$ )	( $R_{\odot}$ )	(Gyr)	( $L_{\odot}$ )
9757640	$5516^{+50}_{-54}$	$4.000^{+0.009}_{-0.008}$	$0.29^{+0.08}_{-0.06}$	$1.12^{+0.02}_{-0.04}$	$1.75^{+0.02}_{-0.02}$	$8.37^{+0.71}_{-0.95}$	$2.53^{0.14}_{-0.08}$
9778067	$5906^{+58}_{-60}$	$3.884^{+0.014}_{-0.012}$	$-0.36^{+0.01}_{-0.02}$	$1.06^{+0.02}_{-0.02}$	$1.96^{+0.04}_{-0.04}$	$6.30^{+0.44}_{-0.13}$	$4.27^{0.05}_{-0.26}$
9787965	$6079^{+56}_{-69}$	$3.929^{+0.016}_{-0.016}$	$0.01^{+0.10}_{-0.01}$	$1.26^{+0.02}_{-0.04}$	$2.02^{+0.05}_{-0.05}$	$4.50^{+0.41}_{-0.46}$	$4.99^{0.37}_{-0.37}$
9791157	$5841^{+58}_{-59}$	$3.940^{+0.009}_{-0.009}$	$0.10^{+0.10}_{-0.05}$	$1.20^{+0.02}_{-0.04}$	$1.95^{+0.03}_{-0.03}$	$5.68^{+0.40}_{-0.40}$	$3.93^{0.22}_{-0.22}$
10417911	$5552^{+56}_{-53}$	$3.955^{+0.017}_{-0.017}$	$0.25^{+0.04}_{-0.02}$	$1.16^{+0.02}_{-0.02}$	$1.89^{+0.05}_{-0.05}$	$7.02^{+0.66}_{-0.47}$	$3.02^{0.19}_{-0.18}$
10727922	$5999^{+58}_{-59}$	$3.946^{+0.018}_{-0.019}$	$-0.11^{+0.02}_{-0.10}$	$1.14^{+0.04}_{-0.04}$	$1.89^{+0.05}_{-0.05}$	$5.76^{+0.54}_{-0.57}$	$4.14^{+0.26}_{-0.24}$
10731424	$6162^{+62}_{-65}$	$3.773^{+0.017}_{-0.019}$	$0.01^{+0.09}_{-0.01}$	$1.44^{+0.04}_{-0.04}$	$2.59^{+0.08}_{-0.08}$	$2.70^{+0.17}_{-0.24}$	$8.74^{0.58}_{-0.71}$
10923629	$6017^{+62}_{-60}$	$3.819^{+0.010}_{-0.008}$	$0.2^{+0.08}_{-0.1}$	$1.42^{+0.04}_{-0.02}$	$2.45^{+0.03}_{-0.04}$	$3.05^{+0.19}_{-0.18}$	$7.07^{0.38}_{-0.38}$
11083308	$6032^{+59}_{-68}$	$3.911^{+0.011}_{-0.011}$	$0.01^{+0.09}_{-0.01}$	$1.24^{+0.04}_{-0.02}$	$2.06^{+0.04}_{-0.04}$	$4.60^{+0.34}_{-0.49}$	$5.04^{+0.35}_{-0.30}$
11138101	$6148^{+62}_{-62}$	$3.835^{+0.014}_{-0.016}$	$0.01^{+0.09}_{-0.01}$	$1.36^{+0.04}_{-0.04}$	$2.34^{+0.06}_{-0.06}$	$3.31^{+0.21}_{-0.23}$	$7.08^{0.49}_{-0.52}$
11193681	$5594^{+66}_{-58}$	$3.809^{+0.008}_{-0.007}$	$0.20^{+0.08}_{-0.01}$	$1.36^{+0.02}_{-0.04}$	$2.40^{+0.04}_{-0.03}$	$4.01^{+0.24}_{-0.33}$	$5.10^{0.24}_{-0.26}$
11771760	$5862^{+69}_{-62}$	$3.674^{+0.010}_{-0.005}$	$0.01^{+0.09}_{-0.01}$	$1.54^{+0.04}_{-0.04}$	$2.99^{+0.05}_{-0.06}$	$2.17^{+0.20}_{-0.11}$	$9.53^{0.47}_{-0.50}$
11817562	$5974^{+60}_{-59}$	$3.803^{+0.009}_{-0.009}$	$0.2^{+0.08}_{-0.01}$	$1.44^{+0.02}_{-0.02}$	$2.50^{+0.03}_{-0.04}$	$3.04^{+0.18}_{-0.16}$	$7.11^{0.38}_{-0.35}$
11919192	$6368^{+61}_{-69}$	$3.890^{+0.009}_{-0.009}$	$-0.2^{+0.09}_{-0.1}$	$1.28^{+0.04}_{-0.02}$	$2.14^{+0.03}_{-0.03}$	$3.48^{+0.25}_{-0.32}$	$6.78^{0.36}_{-0.43}$
12069127	$6247^{+46}_{-75}$	$3.891^{+0.009}_{-0.010}$	$0.1^{+0.1}_{-0.1}$	$1.42^{+0.02}_{-0.06}$	$2.23^{+0.03}_{-0.04}$	$3.02^{+0.39}_{-0.16}$	$6.83^{0.28}_{-0.44}$